

OVERVIEW OF U.S. INTERNATIONAL COMPETITIVENESS

HEARINGS

BEFORE THE

SUBCOMMITTEE ON INTERNATIONAL ECONOMIC
POLICY AND TRADE

OF THE

COMMITTEE ON FOREIGN AFFAIRS
HOUSE OF REPRESENTATIVES

NINETY-SEVENTH CONGRESS

ON

Aerospace Industry, Machine Tools Industry, and Electronics Industry

MARCH 19, 1981; JUNE 9, AUGUST 11, 1982

Printed for the use of the Committee on Foreign Affairs



U.S. GOVERNMENT PRINTING OFFICE

WASHINGTON : 1983

12-426 O

H381-56.

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OVERVIEW OF U.S. INTERNATIONAL COMPETITIVENESS

The Aerospace Industry

THURSDAY, MARCH 19, 1981

HOUSE OF REPRESENTATIVES,
COMMITTEE ON FOREIGN AFFAIRS,
SUBCOMMITTEE ON INTERNATIONAL
ECONOMIC POLICY AND TRADE,
Washington, D.C.

The subcommittee met at 3:30 p.m. in room 2255, Rayburn House Office Building, Hon. Jonathan B. Bingham (chairman of the subcommittee) presiding.

Mr. BINGHAM. The Subcommittee on International Economic Policy and Trade meets today to review the competitive position of the U.S. commercial aircraft industry in international trade and possible implications for U.S. international economic policy. Over the coming months, the subcommittee hopes to look at other key sectors of the economy in the same manner.

We begin with the commercial aircraft sector for perhaps obvious reasons. It is traditionally one of our strongest export sectors, responsible for more than a million American jobs; but it also appears to be facing formidable problems in international markets. This subcommittee, under the Fenwick amendment and other provisions of the Export Administration Act of 1979, is formally consulted on commercial aircraft sales where there are major foreign policy considerations. We are responsible as well, of course, for the export licensing process which is a factor in all of our high-technology exports, including aircraft.

We are pleased to have with us this afternoon representatives of the Aerospace Industries Association—Mr. Karl G. Harr, president of that association—and three executive branch agencies most directly involved in our export policies—Mr. Paul O'Day, Acting Under Secretary, Office of International Trade Administration, Department of Commerce; Dr. Stephen Piper, Coordinator, Aerospace Trade Policy, Office of the U.S. Trade Representative; and Mr. Harry Kopp, Deputy Assistant Secretary, Bureau of Economic and Business Affairs, Department of State.

Gentlemen, I hope that it will be possible for you, in view of the hour and the fact that there is another hearing in progress which the Chair would like to attend, to summarize your statements. They will be incorporated in the record in full, but it would be appreciated if you would summarize them for us.

Our first witness will be Under Secretary Paul O'Day.

**STATEMENT OF PAUL T. O'DAY, ACTING UNDER SECRETARY,
OFFICE OF INTERNATIONAL TRADE ADMINISTRATION, DE-
PARTMENT OF COMMERCE**

Mr. O'DAY. Thank you, Mr. Chairman. My statement is somewhat long and technical. I am delighted to summarize it, as you have requested.

The three sectors of the industry I would like to focus on include large civil aircraft, general aviation, and helicopters. The most important of these three, of course, is the large civil aircraft portion of the industry, which accounted for \$11.1 billion in shipments in 1980, and over 50 percent of that number was produced for export.

MARKET FORECAST

Our current forecast is that that market is leveling off, particularly on the domestic side. We expect exports in 1981 will continue to grow, as much as 18 percent in units, over 1980. The foreign producers' share of the market worldwide, however, is increasing and we expect that that will continue to happen in 1981 and through the rest of the decade. For the period 1981 through 1984, our analysts in Commerce project a market for about 2,000 large transports and about half of those will be widebodies. We expect that the airbus consortium could take as much as one-third of that market during that 5-year period. For the last half of the decade we expect an additional market for 2,500 large transports and, again, about 1,000 widebodies, and the airbus consortium during that period could take as much as 50 percent of the market. We do know they have plans to increase their production to as many as 8 to 10 aircraft per month by about mid-decade.

For the narrow-bodied transports, we have a wide lead there and we expect that will be maintained for some years; but about mid-decade, with the arrival of the Airbus consortium and the Japanese, the picture, we feel, will begin to change, although it is too early to project what percentage of the market they might obtain over the last half of the decade.

General aviation includes commuter aircraft, multiengine business aircraft, and single-engine aircraft. On the commuter front, we expect about 1,000 aircraft to be demanded in the world market over the first half of the 1980's. That will be a very competitive environment. The United States has only one craft in production at the moment that will meet that market. Many others are on the drawingboard, but also our foreign competitors have craft that will in many cases reach the market before ours. So, although there will be quite an expansion in that area, we expect many of our producers will come to the market after foreigners have put their craft up for sale.

In the business aircraft area, with deregulation adding incentive for more corporations to provide their own travel to cities not covered by main airlines, and the general increase in business activity for the decade, we expect that will be a brisk market throughout the 1980's.

Finally, in the single-engine aircraft area, we are a little less sure of our projections here. We saw a sharp decline of 36 percent in 1980. We see a further decline in 1981, and with uncertainties regarding fuel costs in particular, it is not clear at the moment just what the market might be out beyond that time through the rest of the decade.

Helicopters are clearly the fastest growing area in the market. We have a shipment base in 1980 of about \$1 billion. That should grow to about \$10 billion worldwide in 1990. We expect that about mid-decade the number of civil helicopters will surpass the number of military helicopters, and by the end of the decade they will be produced at about a 3-to-1 ratio over the military.

FOREIGN CONTENT

With regard to foreign content, which I know is an issue that this subcommittee is concerned with, about 7.5 percent of our large transports last year was foreign content. That number may begin to rise as we see more military and civil shared production agreements and also offset requirements rising.

The smaller turboprop, executive, and commuter aircraft had even a larger share of foreign content, about 25 percent. That is not a one-way street, however. In the airbus, for example, the U.S. content of that craft is upward of 30 percent at the moment. That may decline somewhat as the consortium looks for more local sources of supply; but so long as the engines are procured substantially from U.S. manufacturers, we will have a healthy share of that craft.

Mr. Chairman, I will stop at that point and just rely on my statement for the record. Part of that statement is our recently published Aerospace Outlook, prepared by Randolph F. Myers of the Commerce Department, who is our senior aerospace analyst; it contains great detail on every aspect of the industry in regard to projections for 1981, and some projections out as far ahead as 1984.

Thank you, Mr. Chairman.

Mr. BINGHAM. Thank you very much, Mr. O'Day.

[Mr. O'Day's prepared statement follows:]

PREPARED STATEMENT OF PAUL T. O'DAY, ACTING UNDER SECRETARY, OFFICE OF INTERNATIONAL TRADE ADMINISTRATION, DEPARTMENT OF COMMERCE

Mr. Chairman and members of the Subcommittee: I appreciate this opportunity to testify before the Subcommittee on the competitive position of the U.S. aerospace industry. To coordinate my remarks with those of my colleagues from the Office of the United States Trade Representative and the Department of State, I will focus my testimony on the current status of each major sector of the U.S. civil aerospace industry, and the near and middle-term outlook for each of these sectors.

The major sectors of the aerospace industry covered in the following sections include large civilian aircraft, general aviation, and helicopters.

LARGE CIVILIAN AIRCRAFT

Large transports (31 place and over) comprise the largest portion of the U.S. aerospace industry's shipments. In 1980, 384 units were produced by U.S. manufacturers, a 2 percent increase over 1979. In value, these shipments rose 32 percent, from \$8.4 million in 1979 to \$11.1 billion in 1980.

Over 50 percent of the U.S. production of large civilian aircraft is manufactured for export. In 1980, exports accounted for 237 (\$6.7 billion) of the 384 units produced.

This substantial market is currently leveling off, after a decade of healthy growth, due primarily to the continuing rise in fuel costs, combined with sluggish performance in most major international economies. As an indication of the current unused capacity in this part of the airline industry, an estimated equivalent of 21 empty widebodies flew the Atlantic each day in the Summer of 1980. As a result of the reduction in long-range passenger travel, a substantial number of new and used widebody aircraft are available on the open market for the first time since their introduction in the early 1970's.

Outlook

In 1981, U.S. producers of large civilian aircraft anticipate a leveling off in shipments. Domestic shipments will fall sharply, but exports in 1981 are expected to rise 18 percent in units and 20 percent in value over 1980 (280 and \$8 billion, respectively).

Foreign shares of the aerospace market are expected to continue to increase in the 1980's. Europe's widebodied Airbus started 1981 with an order backlog of 167 units compared to 51 units in June 1978, but Boeing still led the widebodied backlog with 209 units. The Airbus aircraft can be expected to continue to expand its market share at the expense of the U.S. aircraft manufacturers.

There is a potential market from 1981 through 1984 for 2,000 large transports—1,000 of which are expected to be widebodied types. European Airbus can be expected to capture about one-third of this market if present trends continue.

From 1985 through 1989, there is a potential world market for 2,500 large transports with 1,000 of these being widebodied types. During this five year period, the European Airbus could capture as much as 50 percent of the market for widebodied types.

For narrowbodied transports, the U.S. producers should dominate this market during the first years of the decade. After 1984, however, the forecast becomes much less clear, primarily because the Airbus consortium and the Japanese will be entering the market.

GENERAL AVIATION AIRCRAFT

The General aviation sector includes nonmilitary and nonairline manufacturers in three categories—commuter aircraft, multiengine business aircraft (including turboprops and turboprops), and single-engine aircraft. U.S. manufacturers of these products in 1980 shipped approximately 11,800 units valued at \$2.5 billion, a 30 percent decrease in units from 1979.

The U.S. commuter aircraft market has received a major stimulus from the deregulation of the U.S. airline industry. Routes to one-third of the cities served by major airlines ten years ago have been discontinued as a direct result of airline deregulation; major airlines now serve fewer than 400 of the Nation's 15,000 airports.

This development has sharply increased the demand for more feederline, or commuter, aircraft. At present, the U.S. industry produces only one aircraft that meets the needs of this market—Swearingen Merlin 4A. However, a number of U.S. commuter aircraft designs are in the planning stage. Swearingen is considering production of a 30-passenger unit, as are Ahrens Aircraft of Puerto Rico and Beech Aircraft. Gulfstream American is redesigning its Gulfstream 1 to accommodate 31 passengers, and Commuter Aircraft Corporation is establishing a manufacturing facility for a 44-passenger commuter aircraft. Also, Fairchild Industries is undertaking a 50/50 joint venture with Saab of Sweden to develop a 36 passenger aircraft for first delivery in late 1982.

Foreign producers are also preparing to serve this growing market. The British are moving ahead with 19-seat and 30-seat aircraft for introduction in 1981. Canadian-built 20- and 50-passenger aircraft are already in service in the United States, and the Canadians have a 32-passenger aircraft in the design stage. The Brazilians have delivered 200 18-passenger Bandeirantes worldwide and have a 30-passenger unit expected to be available in 1983. Short Brothers of Northern Ireland already has 50 of its 30-passenger SD3-30 commuters in operation.

Outlook

Forecasts indicate a world requirement for 1980-1985 of as many as 1,000 commuter aircraft. Competition will be aggressive, with many U.S. manufacturers entering the market after foreign producers establish a substantial foothold.

U.S. turbine-powered business aircraft demand is growing as sales decline in the piston-powered single- and multiengine segments of the small aircraft industry. Through the 1970's, business-related aircraft purchases accounted for 90 percent of the turbojet (multiengine, 2,200-11,400 pounds of thrust per engine) market and 80

percent of the turboprop (multiengine, propeller-driven, 500-1,000 shaft horsepower per engine) market.

Shipments of U.S. manufactured business turbojet aircraft increased 16 percent in 1980 to 326 units from 282 in 1979. Dollar shipments rose 50 percent in 1980 to \$815 million from \$542 million in 1979—again of 35 percent in 1972 constant dollars. Prices of U.S. manufactured business turbojets range from \$1.5 million to 9.7 million, with an average price of \$2.5 million.

Shipments of turboprop business aircraft increased 25 percent in 1980 to 795 units with a value of \$847 million, from 637 with a value of \$550 million in 1979, a value increase of 54 percent. U.S. manufactured business turboprops have an average price of \$1 million and range from \$700,000 to \$1.8 million.

Foreign competitors have identified the large U.S. market for turbine aircraft and have begun to penetrate our market. In 1980, imports of business turbojets and turboprops totalled 157 aircraft with a value of \$340 million—22 percent of the U.S. market. France exported 47 business-type aircraft to the United States in 1980 valued at \$142 million, and the United Kingdom shipped 21, valued at \$98 million. Most of the remainder of our imports were shipped from Israel and Japan.

In 1980, exports accounted for 26 percent of total U.S. dollar shipments of business turbojets and turboprops (110 business turbojets and 245 turboprops for a total value of about \$425 million).

Outlook

Since deregulation of the U.S. airline industry, business aircraft have become more attractive for rapid business travel to cities where airlines are abandoning routes. As a result, the demand for business aircraft should continue to be brisk in the early 1980's as airlines discontinue service on additional uneconomical routes and as manufacturers improve operating efficiency and fuel consumption.

The General Aviation Manufacturers Association (GAMA) forecasts shipments of turbojet business aircraft to increase 14 percent in 1981 to 370 units (326 in 1980) with a value of \$1.1 billion. GAMA also expects U.S. turboprop shipments to rise 14 percent in 1981 to 910 units (795 in 1980) with a value of \$1 billion.

Foreign penetration of the U.S. business aircraft market will continue to increase in the early 1980's. The HS 125, British Aerospace's most popular jet already accounts for one-third of the world's medium-size business jet market. (Half of the HS 125's produced are shipped to the U.S. market.) Also, Canadair expects to deliver 58 of their newly certified, \$7 million Challenger business jets to the United States in 1981, following initial shipments of seven in 1980.

Shipments of single-engine aircraft—primarily privately-owned—have been affected by high fuel costs and interest rates. Shipments declined 35 percent in 1980, from 13,044 aircraft in 1979 to 8,500. Single-engine shipment values decreased from \$553 million in 1979 to \$442 million in 1980.

Single-engine aircraft are used heavily in agricultural applications, and this market was affected by negative economic and climatic factors in 1980. Total shipments of agricultural aircraft dropped from 593 aircraft valued at \$35 million in 1979 to 357 valued at \$25 million in 1980—a real decline of 36 percent when calculated in 1972 constant dollars. U.S. exports of agricultural aircraft also declined 37 percent in units in 1980 from 297 aircraft in 1979 to 188.

Outlook

General economic uncertainty and high operating costs, particularly for fuel, will continue to deter purchases of small aircraft. Single-engine aircraft shipments are projected to decline again in 1981 to 8,200 units—compared to 8,500 in 1980—while total value is expected to increase slightly to \$467 million. These aircraft will comprise approximately 70 percent of total general aviation (nonmilitary and nonairline) shipments and 14 percent of total value.

The 1981 market for new agricultural aircraft will remain almost unchanged from the 1980 level with projected shipments increasing slightly to 380 aircraft valued at \$27 million.

HELICOPTERS

Helicopter operations are the fastest growing segment of the world air transportation system. From an estimated U.S. 1980 shipment base of about \$1 billion, demand for this equipment is projected to reach \$10 billion by the end of the decade.

Although a major portion of the growth in this market has been due to military sales, our current estimate is that the number of civil helicopters in the free world will equal the total of military helicopters by 1985. By 1990, the civil helicopter fleet

is expected to double compared to 1980 to a total of 26,000 units; military units are expected to increase by only 25 percent to total 23,000 by the end of the decade.

In the United States, the value of civil helicopter exports increased in 1980 by 44 percent to \$800 million (unit exports rose from 459 to 525). The leading purchasers of U.S. manufactured helicopters in 1980 were Canada, Mexico, and the United Kingdom—reflecting, in part, the sharply increased market for helicopters in energy-related commercial operations.

U.S. imports of civil helicopters also increased in 1980, to 207 units, up from 91 in 1979. Most of these helicopters were imported from France (Aerospatiale). Imports are expected to continue to grow—for example, Aerospatiale currently holds a \$215 million contract for 90 military helicopters with the U.S. Coast Guard, with deliveries scheduled in 1982.

During the 1980's a number of technical improvements in helicopter performance will enhance the utility and acceptability of helicopters for business flying. Improved avionics, reduced noise and vibration, and significant improvements in speed—up to 300 miles per hour—will contribute to the expansion of the helicopter market. In addition, rotary wing safety factors have been substantially improved, due, in part, to greater emphasis on twin-engine helicopters with single-engine operational capability.

Outlook

U.S. producers are expected to ship 1,500 helicopters valued at \$921 million in 1981, an increase of 27 percent. The production of civil helicopters should surpass military craft by three-to-one in the late 1980's. The U.S. civil fleet now accounts for 35 percent of production but the U.S. civil and military helicopter fleets should be equal in size by 1985.

The demand for twin-engine helicopters will grow progressively stronger in the 1980's. Although single-engine production currently exceeds twin-engine production by four-to-one, they could be equal by 1985.

The actual magnitude of the future success of civil helicopters rests heavily upon the level of offshore oil drilling and exploration and the practicality of intercity heliports. Although heliports offer a convenient means of city-center transportation, factors such as high fuel consumption (250 percent greater than fixed-wing seat-mile costs) and noise restrictions will have to be overcome.

FOREIGN CONTENT

Reported values of U.S. aerospace shipments and exports mask a rapidly increasing foreign content. Large transports shipped during 1980—384 units valued at \$11.1 billion—had an estimated 7.5 percent foreign content. In 1980, shipments of many smaller turboprop executive and commuter aircraft—800 units valued at \$560 million—had an estimated 25 percent foreign content.

Foreign content of U.S. aerospace shipments will soon show substantial increases as military and civil shared production programs reach higher levels. Additionally, U.S. commitments to foreign buyers in negotiating sales of military products involve, on occasion, high "offset" values, some reportedly as high as 125 percent, as on the sale of long range patrol aircraft to Canada.

One of the fastest growing import categories has been aircraft parts. Imports of non-engine components rose 27 percent in 1978 to \$368 million; in 1979, they increased 54 percent to \$566 million; and in 1980, an additional 66 percent to \$938 million.

Parts imports for civil aircraft will continue their rise as Boeing 767 aircraft deliveries—with Japanese and Italian risked share contents—reach about 100 units in 1983. In addition, an increase in imports of Rolls Royce engines can be expected for the Boeing 757 orders that have specified this power source. Aircraft engine and engine parts imports totaled \$1.1 billion in 1980, driven upward primarily by Rolls Royce engines for Lockheed L-1011's and for executive and military aircraft. For 1980, engine shipments from the United Kingdom reached 381 units with a value of \$436 million. During the same period, imports from Canada of PT-6 and other turbine engines for general aviation aircraft were 2,026 units with a value of \$234 million.

Importantly, this is not a one-way flow. U.S. content in foreign-produced aircraft is also significant. For example, current estimates for the U.S. content in European Airbus production totals about 33 percent, due primarily to the fact that the aircraft's engines have significant U.S.-origin components.

In summary, Mr. Chairman, the U.S. civil aerospace market in the 1980's will be characterized by volatility and change. The complete effects from the continued rise in fuel prices, combined with the overall sluggishness of major international econo-

mies remain undetermined. To some extent, the near term downward revision of growth rates for the civilian aerospace industry will be offset by an increase in expenditures for military equipment in the early 1980's. Thus, the overall levels of domestic employment and value of shipments for the combined civil/military aerospace sector will probably remain at or slightly above current levels.

In the middle and longer term, however, our forecast must be cautious. The world market will grow, but it is unclear whether the U.S. aerospace industry will maintain its across-the-board competitive lead.

Finally, Mr. Chairman, the Department of Commerce has recently published a comprehensive forecast for the U.S. aerospace industry, authored by Randolph Myers, Jr., Commerce's senior aerospace analyst. I would like to submit a copy of Mr. Myers' outlook as part of this testimony.¹

Mr. BINGHAM. We will hear from Dr. Piper next.

STATEMENT OF W. STEPHEN PIPER, COORDINATOR, AEROSPACE TRADE POLICY, OFFICE OF THE U.S. TRADE REPRESENTATIVE

Mr. PIPER. Mr. Chairman, members of the subcommittee, it is a privilege to appear before you this afternoon to discuss the current and future competitive position of the U.S. civil aircraft industry in the international marketplace, as well as several factors which inhibit U.S. aircraft export sales. Because of my familiarity with the subject under discussion this afternoon, Ambassador Brock has asked that I appear in his place. He has also asked that I express to you his strong endorsement of your subcommittee's concern with assessing the impact of various U.S. Government policies and programs on the export performance of U.S. companies.

The export earnings of our industrial products will have far greater importance in the American economy in the decade ahead than in the past decade. In many areas, the technological lead of American industry is being effectively challenged by our trading partners. Particularly in the face of this challenge, we should not impose restraints on export sales of American products except under the most limited of circumstances and where the benefits of such actions are defined and outweigh the disadvantages.

Mr. Chairman, my prepared statement submitted for the record responds to your request for data and analysis regarding the competitive situation confronting U.S. civil aircraft manufacturers, and there are literally thousands and thousands of such companies all across America, many of them classified as small businesses, that are dependent upon export of civil aircraft for their long-term viability.

In the time available this afternoon, I should like to draw some conclusions from the material presented in the written testimony and to discuss the implications for U.S. Government policy regarding export licensing and controls that derive from the competitive situation our manufacturers face.

U.S. COMPETITIVE EDGE SLIPPING

As to the competitive situation, we have become accustomed to seeing U.S.-manufactured aircraft, large and small, win the major sales competitions around the world largely due to their economic and technological advantages and the quality of service support provided by our manufacturers. Encouraged by the size of the U.S.

¹ See app. 1.

domestic market—about 45 percent of the world's demand for airline aircraft and two-thirds of the demand for general aviation aircraft—U.S. manufacturers have competed intensely with each other to provide a full range of civil aircraft sizes and types.

The strength and diversity of their production base, attuned to the requirements of a multifaceted market, have aided U.S. aerospace efforts to compete effectively in export markets. The broad customer base and product support availability built up around the world over the years have, in turn, time and again, facilitated additional sales to new and repeat customers. However, restraints on U.S. exports have already jeopardized the preeminent position of our industry in more than one geographic region. Many foreign customers have found that they can no longer depend upon American manufacturers to supply their civil aircraft requirements or their military aircraft requirements. They take offense when we tell them that we do not want to sell them one product or another, and they seek to make their purchases elsewhere.

But even more important than the loss of the immediate sales is the fact that by hindering, delaying, or preventing a sale of U.S. products, we aid our foreign competition in establishing a customer base for follow-on sales in carrying the cost of providing regionally available technical support. A business relationship developed for one aircraft model often leads to a relationship for related aircraft and other goods. Thus, we do not just lose a sale; we jeopardize our historic market position, and not just in one country but in a region.

FOREIGN GOVERNMENT SUBSIDIZATION

Our manufacturers largely face great difficulties in meeting foreign competition. They must put at risk \$1 billion or more for a new, large commercial passenger aircraft and another \$1 billion or more for an engine. Even programs for small aircraft involve hundreds of millions of dollars of risk investment. But the foreign competition usually does not have to bear these risks; they have government assistance, whether loan guarantees or direct budget appropriations, or both, for the development, production, marketing, and product improvement of aircraft.

Indeed, foreign governments have established policies to develop and support a civil aircraft industry and they fund their companies to produce commercial products. The world market penetration of the European Airbus has been staggering. In January, Airbus reported that 460 orders and options had been placed, bringing its share of the widebodied jet aircraft market orders and options, together, which was only 3 percent in 1976, to more than 38 percent today. The success of this program was made possible only by continued massive government funding beginning in the initial stages of design and development and carrying through now to the marketing of the aircraft. This support will continue into the 1980's as Airbus develops new-generation aircraft.

In Japan, the Ministry of International Trade and Industry is moving rapidly and systematically to assist the Japanese industry in developing a new-generation aircraft in the 120-to-150-passenger range for which the demand is projected to be worth \$72 billion

over the next decade, and an engine to power that aircraft. Japan has made the industrial policy decision to establish a competitive civil aircraft industry and they are now implementing that decision. In the United Kingdom, Rolls Royce, a state-owned enterprise, owes its existence in the world market largely to government supports.

As to other aircraft programs, the foreign-government-supported competition is not limited to large passenger aircraft. Our manufacturers of commuter-size aircraft, in developing new 20-to-50-seat aircraft, face, among others, Sweden's support of Saab's joint development with Fairchild of a turboprop aircraft with a capacity of 30 to 34 seats for airline service in 1984, the United Kingdom's support of the new 36-passenger Shorts 360 being developed by the government-owned Short Brothers Ltd. of Northern Ireland for airline service beginning next year, French and Italian government support of a joint effort to develop a 44-to-50-seat commuter aircraft targeted for 1985 introduction, and also Canadian Government guarantees of commercial loans to deHavilland of Canada to develop the new 32-seat Dash-8, a head-to-head competitor in the U.S. market with the Brasilia, produced by the government-established Embraer of Brazil.

As to the Agreement on Trade in Civil Aircraft, having identified a number of specific aircraft and engine programs that are direct beneficiaries of government funding, guarantees and other support, it is pertinent to ask, what are we doing, what can we do to assure reasonable competitive opportunity for private-enterprise manufacturers that do not operate on government largess and support?

As you are aware, substantial problems have arisen in the past year regarding reform of the export credit arrangement; other congressional committees are holding hearings on these problems and on what action the United States might take. This administration will continue to press our trading partners to eliminate the subsidy element in export financing in order that such might become a neutral component in the competitiveness equation.

GATT AGREEMENT ON TRADE IN CIVIL AIRCRAFT

In 1978 the United States, with the support of our civil aircraft industry, took the lead in developing a sectoral agreement for aircraft as a component of the Tokyo Round of Multilateral Trade Negotiations. The only industrial sector agreement of its kind, the GATT Agreement on Trade in Civil Aircraft sets forth a framework to promote a more free and fair trade environment for civil aerospace products.

The preamble of the agreement sets forth the general policy objective of establishing an international framework governing the conduct of trade in civil aircraft. Specific objectives include the operation of civil aircraft activities on a commercially competitive basis and the elimination of adverse effects on trade resulting from government support of civil aircraft development, production and marketing.

The implementation of this framework notwithstanding, American manufacturers are still somewhat disadvantaged in international markets, not only because of the policies of foreign govern-

ments but also, and more importantly germane to these hearings, because of impediments that our Government imposes for various foreign policy and national security reasons.

Developing an effective trade policy for the aerospace industry requires diligent efforts on two fronts: not only must we continue to monitor other nations' adherence to the multilateral framework but also we must work to eliminate those disincentives to trade which are largely self-imposed.

DISINCENTIVES TO U.S. EXPORTERS

Last September, a report to the Congress on export promotion functions and potential export disincentives highlighted a number of impediments facing the U.S. exporter, ranging from export controls for foreign policy and national security purposes to codes of conduct, including the Foreign Corrupt Practices Act, antiboycott regulations and antitrust laws. The report has provided a catalyst for review of U.S. Government policies and, as need be, alteration of current U.S. Government practices that have undermined the ability of the U.S. manufacturer to sell overseas and which have raised questions as to the reliability of the U.S. manufacturer as a supplier.

Desirous of making an effective U.S. trade policy not merely rhetoric but a reality, Ambassador Brock has initiated, through the Trade Policy Committee, an interagency work program to review the domestic disincentives to trade.

With respect to export control policy, a policy which has contributed to market losses for the aircraft industry in more than one key geographic region, the Commerce Department will lead an analysis of the costs and benefits of our export controls policy. In addition, Commerce will be coordinating the development of an administration position on the proposal to establish an independent Office of Export Controls.

I should emphasize that we have consulted and shall continue to consult closely with the private sector and the Congress as we develop our views and proposals on these disincentives. We recognize that we must put our own house in order by working to mitigate the deleterious impact of various U.S. Government practices. In conjunction with our efforts on the international front, we expect that such activities will improve the ability of the U.S. manufacturer to challenge effectively the foreign competition in an increasingly competitive international market and, once again, establish the reliability of the U.S. aircraft manufacturer as a supplier.

I would conclude by reemphasizing that foreign competition exists and will fill market gaps we elect not to pursue; we should not impose restraints on exports in the face of available substitute suppliers except under the most limited circumstances. A sale lost now has a ripple effect for 15 to 20 years and may well cause many more future sales to be lost. Finally, U.S. Government policies and programs that have the effect of establishing foreign competition and costing American jobs should be the subject of the closest scrutiny.

We must also work to eliminate subsidized export credits; export financing should be on a market basis with Government guaran-

tees as necessary; and we must continue to monitor adherence to the Agreement on Trade in Civil Aircraft and then adapt the agreement to changing circumstances as necessary.

Thank you again, Mr. Chairman, for the opportunity to appear before your subcommittee.

[Mr. Piper's prepared statement follows:]

PREPARED STATEMENT OF W. STEPHEN PIPER, COORDINATOR, AEROSPACE TRADE
POLICY, OFFICE OF THE U.S. TRADE REPRESENTATIVE

Mr. Chairman, Members of the Committee, it is a privilege to appear before you this afternoon to discuss the current and future competitiveness of the U.S. civil aircraft industry in the international marketplace, as well as several factors which have appeared to inhibit U.S. aircraft export sales.

Because of my familiarity with the subject under discussion this afternoon, Ambassador Brock has asked that I appear in his place. He has also asked that I express to you his strong endorsement of your Committee's concern with assessing the impact of various U.S. Government policies and programs on the export performance of U.S. companies. The export earnings of our industrial products will have far greater importance in the American economy in the decade ahead than in the past decade. In many areas the technological lead of American industry is being effectively challenged by our trading partners. Particularly in the face of this challenge we should not impose restraints on export sales of American products, except under the most limited of circumstances, and where the benefits of such actions are defined and outweigh the disadvantages.

In 1978, with the support of the U.S. aircraft industry, I began, as the chief U.S. negotiator, to develop a sectoral agreement for aircraft as a component of the Tokyo Round of Multilateral Trade Negotiations. The only industrial sector agreement of its kind, the GATT Agreement on Trade in Civil Aircraft sets forth a multi-lateral framework to promote a more free and fair trade environment for civil aerospace products. The implementation of this framework notwithstanding, American manufacturers are still somewhat disadvantaged in international markets, not only because of the policies of foreign governments, but more importantly--and what is particularly germane to these hearings--because of impediments that our Government imposes for various foreign policy and national security reasons.

Outline of Testimony

In the course of our discussion this afternoon, principal attention should be focussed on the implications for U.S. Government policy regarding export licensing and controls that arise from our consideration of the effect of these practices on the competitiveness of our civil aerospace industry.

But first, it will be useful to establish a reference base regarding our industry and the international competitive situation. Thus, this testimony is broken into three sections:

1. Overview of the U.S. Civil Aircraft Industry
2. A Data Base on Foreign Competitive Programs
3. Implications of Foreign Competition for U.S. Policy

Overview of the U.S. Aerospace Industry

The following facts regarding the composition of the U.S. aerospace industry, its role in the American economy, and the importance of foreign trade in its long-term viability are pertinent:

- o Civil aircraft sales represent an important and increasing proportion of the industry's sales.
- o In terms of the dollar value of sales, civil aircraft, engines, and parts totaled \$17.2 billion in 1980; the value of comparable military items was \$14.8 billion.
- o Aerospace exports in 1980 were valued at \$14.57 billion, an increase of 24 percent from 1979, and accounted for slightly more than 10 percent of all U.S. exports of manufactures.

- o Civil aerospace exports, accounting for 73 percent of sales, were valued at \$12.58 billion, an increase of 29 percent, from 1979. Summary data on the value of exports are:

EXPORTS BY PRODUCT SECTOR

	Value of Exports in Millions of Dollars	Percent Increase From 1979	As Percent of all Civil Aerospace Exports	Exports As Percent of Sales
Commercial transport aircraft	\$ 6,173	24%	49%	60%
General aviation aircraft	739	14%	6%	32%
Helicopters	285	38%	2%	45%
Other aircraft, including used aircraft	543	69%	4%	N/A
Turbine engines	468	45%	4%	N/A
Other engines	45	-13%	1%	N/A
Parts, accessories, and equipment	<u>4,325</u>	<u>34%</u>	<u>34%</u>	<u>N/A</u>
TOTAL:	\$12,578	29%	100%	73%

See the tables in Annex A for additional data.

- o Civil exports accounted for 85 percent of the industry's exports in 1980.
- o In last September's Fortune ranking of America's 50 leading exporters, 7 of the top 10 were either totally or predominantly involved in aerospace production. (See Annex B).

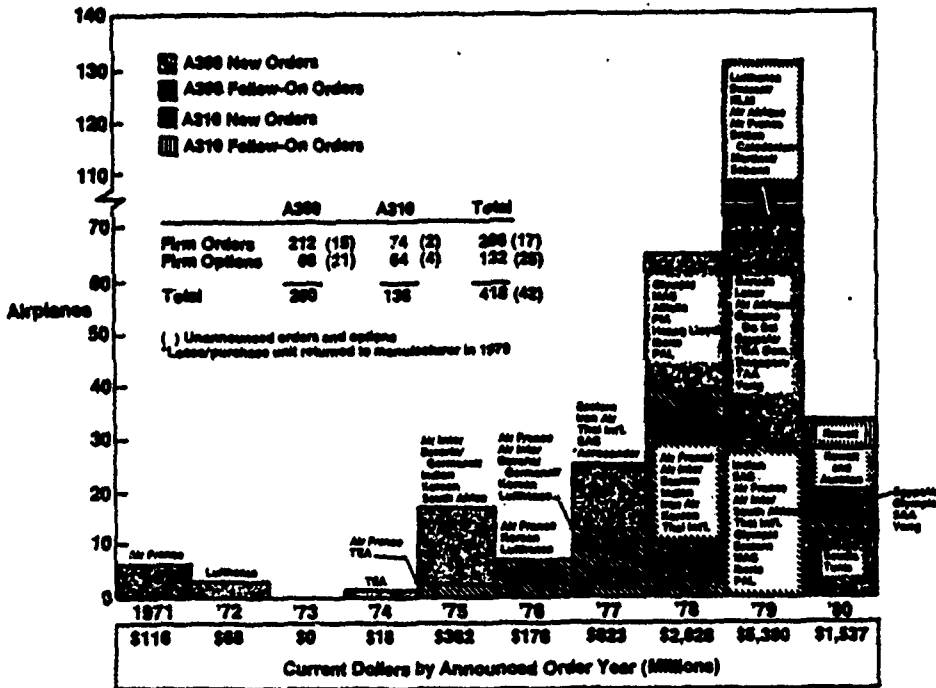
- o Currently 1.2 million persons are employed in the production of airframes, engines, aircraft components, and other aerospace products. Within this group a large percentage of employees are involved in high technology work, thus enabling U.S. aerospace manufacturers to remain on the cutting edge of a competitive industry.
- o The private R & D activities of the aerospace industry have resulted in major technological innovations which have benefited not only the commercial sector, but have also had military spinoffs.
- o The industry is composed of many small companies, as well as the well-known large ones. For example, some 4,200 companies (of which 3,500, located in 44 states are classified as small businesses) assist in the production of the 4½ million parts of a single \$70 million 747. Two weeks ago, the House Banking Committee heard an executive from one of these small businesses testify that his 400 employees generate \$25 million in annual sales, all to the U.S. aerospace industry.

- o The health of his business and the decision as to whether it invests another \$8 million in new equipment, as well as the health of a major airframe manufacturer and the decision as to whether it invests \$1 billion or more in a new model, depend significantly upon the success of U.S. aerospace exports.

The Competitive Situation

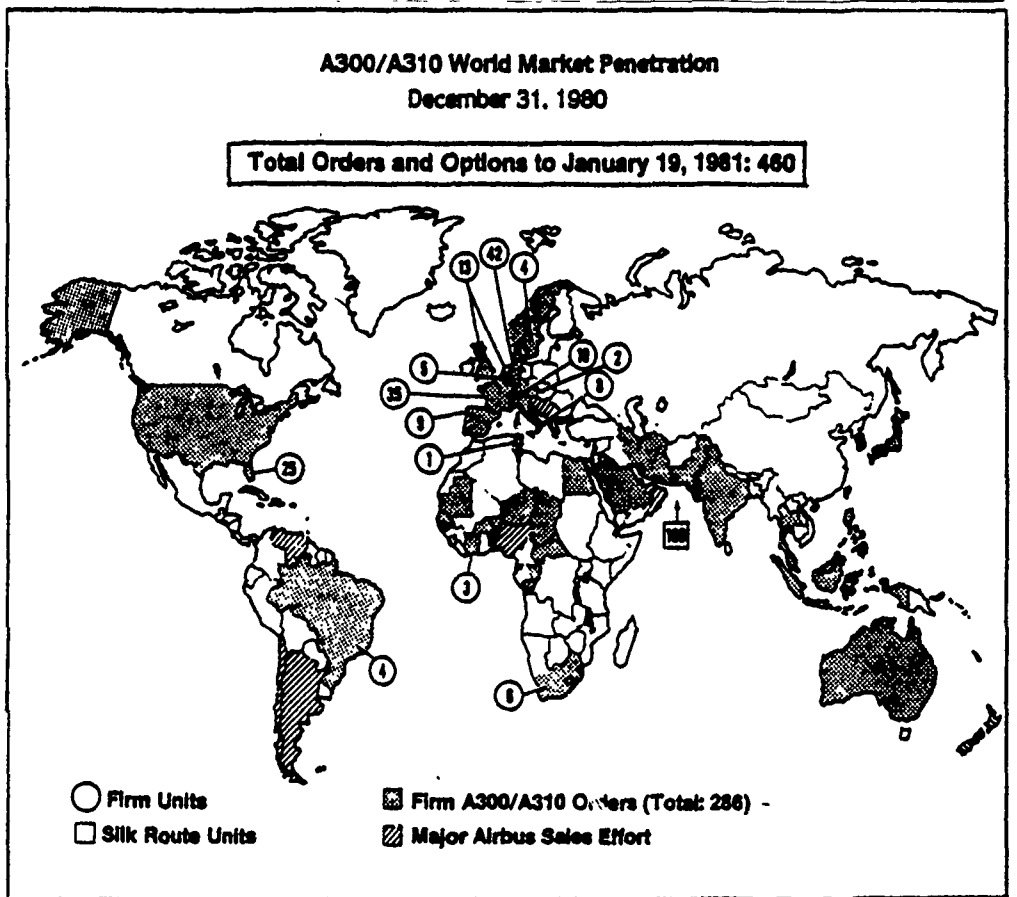
We have become accustomed to seeing U.S. manufactured aircraft--large and small--win the major sales competitions around the world largely because of their economic and technological advantages and because of the quality of service support provided by our manufacturers. Encouraged by the size of the U.S. domestic market (about 45 percent of the non-Soviet world demand for passenger aircraft and two-thirds of the demand for general aviation aircraft), U.S. manufacturers have competed intensely with each other to provide a full range of civil aircraft sizes and types. The strength and diversity of their production base, attuned to the requirements of a multifaceted market, have aided U.S. aerospace efforts to compete effectively in export markets. The U.S. industry has an outstanding reputation for customer service and has built up extensive product support facilities world-wide. The broad customer base and product support availability have in turn facilitated additional sales to new and repeat customers.

A300/A310 Announced Orders and Options
December 31, 1980



While the Europeans have led most major developments in the jet era, our production capacity and technology and our market orientation have resulted in U.S. market dominance. From 1954 to 1978, the Europeans produced 10 different jet transports (a total of 1,008 aircraft--versus 5,218 for U.S. manufacturers), but never more than 280 of one type. All nine programs preceding the Airbus were economic failures, largely paid for with government funds. However, with the introduction of the 4-nation Airbus Industrie

consortium, the Europeans for the first time have competitive aircraft--both the current A300 model and the new A310, a head-to-head competitor with Boeing's new generation 767.



The Europeans, until now, have not been successful in cracking world markets (most of their sales have been mandated procurements by national airlines) and in establishing competitive support bases.

Here again Airbus is different. Airbus is generating a worldwide pattern of sales (see figure) and developing prospects for major reorders. Thus Airbus (with U.S. engines and avionics and with substantial European government support) is positioning itself to obtain a sizable market position in the 1980s. While the U.S. share of the commercial jet aircraft in airline service is 89 percent, the Airbus share of the wide-bodied market, which was 3 percent in 1976, was 38 percent in 1979.

Our companies, of course, maintain close watch on aircraft sales, and I believe that at least one of them will be submitting data to you on Airbus sales. (Indeed Boeing provided us with copies of two figures illustrating Airbus' market penetration.) We would just note that Airbus has had phenomenal success since the first orders in 1971 by France alone. At present, 11 European airlines have 52 A300s in service with orders and options placed for an additional 59 A300s and 75 A310s. Since the first order in the Middle East region, Iran Air in 1977, Airbus gained orders in five countries in just 3 years for 29 A300s and 30 A310s. The first orders in the Asia and Pacific region were in Korea and India in 1975; now airlines in 10 countries have in service or on order (including options) a total of 92.

Market Opportunities

The decade ahead is one of unparalleled challenge and opportunity for aircraft manufacturers--with the price of oil being a major catalyst for increased sales. Several thousand aircraft, built when jet fuel cost 10-12 cents a gallon, must now be retired for economic reasons as fuel costs have increased from 12 percent of a typical airline's total operating cost to 31 percent. Oil exploration, itself, is a major stimulus for the burgeoning civil helicopter market.

New wings, airframe modifications, improved materials technology (in particular lighter weight, greater strength materials), and new generations of engines--turboprop and turbofan--are resulting in substantial fuel savings and noise reductions for all aircraft types. These improvements are stimulating the replacement market, in addition to which there has been a reasonably strong pattern of demand growth--a pattern that is projected to continue.

To illustrate the fuel efficiency improvements being made, one might note that Boeing's forthcoming 767 (with 210 seats) will provide 42 percent more seats and burn 7 percent less fuel than the familiar 707. The passenger capacity of the Douglas DC-9-80, introduced last fall, is 85 percent greater than the original Series 10 model, and the fuel consumption per passenger is 25 percent less.

Whereas sales of commercial jet aircraft in the 1970s totaled \$42 billion, sales in this decade are likely to be on the order of \$120-130 billion.

In addition to orders for current generation aircraft, (Boeing 737 and 747, Douglas DC-9 (especially the DC-9-80) and DC-10, Lockheed L-1011, Airbus A300, and Fokker F-28) and aircraft in development (Boeing 757 and 767, Airbus A310 and British Aerospace BAe 146), there is currently a major competition underway for new, fuel-efficient aircraft in the 120-150 seat category. The demand for such aircraft will be great, as these will be the successor aircraft to the 1,609 Boeing 727s, 669 Boeing 737s, and 863 Douglas DC-9s, and several hundred BAC 1-11s (163), Tridents (86), and Caravelles (129) in service at the end of last year. The value of the replacement market alone is \$72 billion. A census of jet aircraft in airline service is at Annex C.

While major focus is on the new 120-150 seat aircraft, one can expect to see further derivatives of the 747, L-1011, and A300 in the next several years.

I am advised that the three U.S. civil airframe manufacturers are studying various programs, investing their own resources, for offering a replacement to the existing 727, 737, and DC-9 fleets.

In Europe. The Airbus consortium is receiving major government funding to study possible aircraft designs--which are commonly referred to as the SA-1 and SA-2 (SA for single-aisle, as opposed to the twin-aisle layout of a wide-bodied aircraft). Announcement of such a program could well come this year. A 150-160 seat SA-2 is likely to be the first of these programs. The Dutch Government is supporting Fokker's evaluation of an F-29 twinjet transport.

In Japan. MITI is moving rapidly and systematically to assist the Japanese industry in taking advantage of this market opportunity for a new generation aircraft they designate as the Y-XX. This is a part of Japan's explicit plan to enter the civil aircraft sector--it is an integral part of Japan's industrial policy.

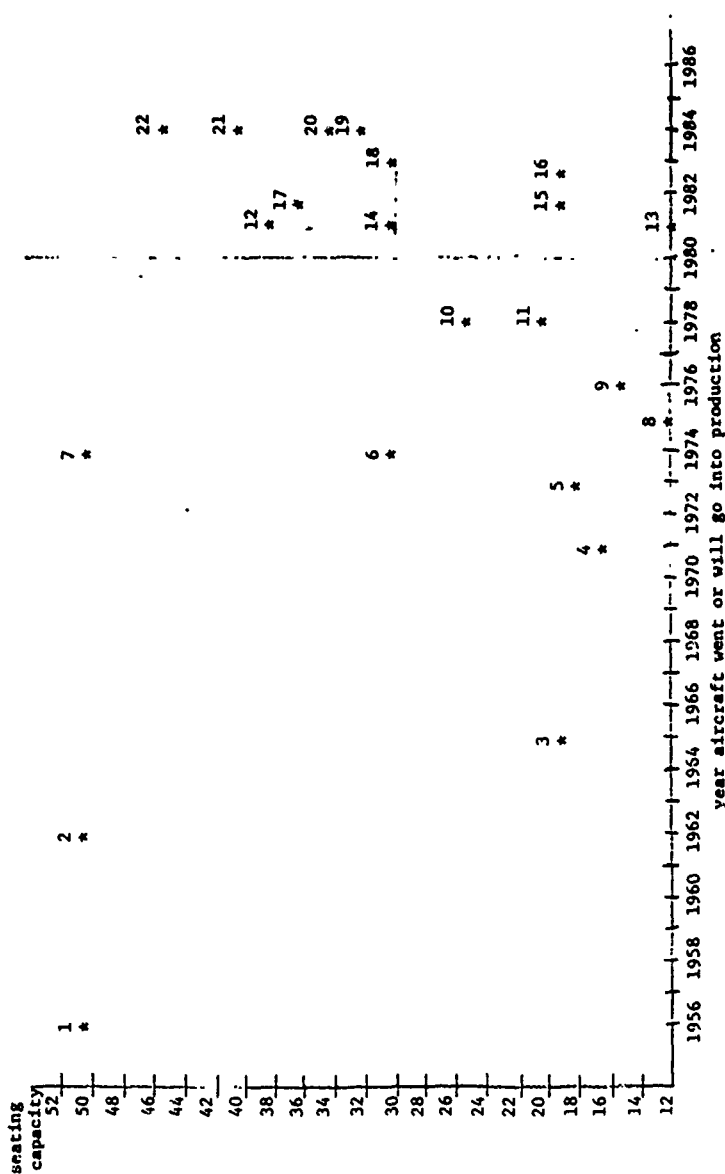
The new 120-150 seat aircraft market is imminent, and the competition for it strong. Last month Delta announced its intention to select a new 150-seat aircraft sometime next year and to order \$5 billion worth of such aircraft. Last week U.S. Air announced its intent to order 20 re-engined, stretched Boeing 737-300 aircraft (worth \$360 million), should Boeing launch such an aircraft program.

The demand for commuter services and for commuter aircraft represents the greatest growth potential in the present air transport market. Many manufacturers anticipate a worldwide

market for 1,000 aircraft in the 20-40 seat range through 1990, with nearly half of this market being in the United States. Foreign manufacturers are moving rapidly to penetrate all segments of the U.S. commuter aircraft market. In late 1979 Embraer of Brazil and deHavilland of Canada each announced new 30-seat aircraft powered by two new-design PT7 Pratt & Whitney of Canada turboprop engines. Both plan first flights in 1983, with deliveries beginning in 1984. The Embraer model, called the Brasilia, will complement the two 18-seat Bandeirante models now in service. The new deHavilland aircraft, designated the Dash 8, is designed for markets for which its 50-seat Dash 7 is too large and its 19-seat Twin Otter is too small. British Aerospace, Fokker, and Israel Aircraft Industries are making major new efforts to sell their F-27 (50 seats), BAe 748 (50 seats), and Arava 101B (18-20 seats), respectively, in the U.S. market. Short Brothers is lengthening the fuselage of its 30-seat SD3-30 to produce, by 1982, a 36-seat SD 360, with a keen eye on the U.S. market. The scattergram on the next page illustrates the diversity and indicates the focus of commuter aircraft developmental efforts.

The demand for twin-engine business aircraft--both turboprop and turbofan--has remained strong in the past several years of inflation and recession. The growth pattern is expected to

COMPUTER AIRCRAFT IN PRODUCTION AND DEVELOPMENT AND THEIR SEATING CAPACITY



1. Fokker F-27
2. British Aerospace Corp. Model 748
3. DeHavilland Twin Otter DHC-6
4. Pilatus Britten-Norman Trislander
5. Embraer Bandeirante 110
6. Shorts SD-330
7. DeHavilland DHC-7
8. Gov't. Aircraft Factories Nomad 22A
9. Gov't. Aircraft Factories Nomad 24B
10. CASA 212-200
11. Arava 101B
12. Challenger-E
13. Avia-Siai Marchetti SF600 Canguro
14. Ahrens AL-404
15. Dornier 228-200
16. British Jetstream 31
17. Shorts SD-360
18. Aerospatiale A-35
19. Aeritalia AIT-230
20. Saab-340
21. Embraer-120 Brazilia
22. Shorts SD-330

continue, as businesses increasingly are attracted by the fuel efficiency improvements of the new models and the time efficiency of having direct point-to-point air service available, when so many of the airline flight schedules are being impacted by competitive pressures focussed on the non-business traveler.

Foreign Government Support of Civil Aircraft Production

An important dimension of the competitive situation that U.S. manufacturers face--whether they produce general and business aviation aircraft, helicopters, commuter-size aircraft, or large passenger jet aircraft--is that almost all of the foreign manufacturers are government-owned or government-supported companies, receiving regular government funding for the development and production of civil aircraft.

Airbus Consortium. The most prominent government funding program for the development and production of a specific civil aircraft project is the Airbus:

- o Airbus Industrie is owned by the British (20 percent) French (37.9 percent), German (37.9 percent), and Spanish (4.1 percent) governments.

- o These governments, as well as the Belgian and Dutch governments, fund their industries (also government-owned) to produce components for the Airbus A300 and A310 aircraft.
- o Evidence of the magnitude of such funding is provided by French Senate reports (the other partner governments are also providing funding in proportion to their ownership share):

-- French funding in 1980 of 173 million French francs (\$41 million) for product improvements in the A300

-- French funding in 1980 of 450 million French francs (\$107 million) for continuing development of the A310, which is a portion of the total projected French Government share of 2.3 billion French francs (\$548 million). (By contrast, Boeing has had to rely on its own resources and private borrowings to raise the \$1 billion needed to launch the 767, a head-to-head competitor with the A310. At the same time, when its net worth was on the order of \$1 billion, Boeing was also faced with funding an \$800 million investment in the 757 program.)

Last December government budget action empowered the West German aircraft industry to schedule new production lots in the current A300 program and to order long-lead-time components. The government's guaranteed funding for the program was increased by DM 850 million (\$396 million) to an eventual total of DM 2.85 billion (\$1.3 billion).

The French Government has pledged 100 million French francs (\$24 million) to support project studies for new generation SA-1 and SA-2 seat aircraft. It is also providing major funding for the CFM-56 engine, which is a likely engine candidate for such an aircraft. (The CFM-56 is a 50-50 joint GE-SNECMA project. In the 1971-1979 period the French Government provided funding of 1.985 billion French francs (\$473 million) to assist SNECMA's development of the engine. Funding in 1980 was another 318 million French francs (\$76 million).)

MITI's Aircraft Program. Japan has made the industrial policy decision to establish a civil aircraft industry, one that is to be competitive in world markets, and Japan is implementing that decision.

In 1973 MITI organized the Civil Transport Development Corporation (CTDC)--a consortium of Fuji Heavy Industries (FHI), Kawasaki Heavy Industries (KHI), and Mitsubishi Heavy Industries (MHI)--to undertake the Y-X project, the Japanese share of the Boeing 767. In 1977 CTDC signed a provisional agreement with Boeing to develop and produce fuselage, wing rib, and other 767 components. (The final agreement for CTDC to become a risk sharing partner was signed September 22, 1978.)

In 1975 Ishikawajima-Harima Heavy Industries (IHI), Kawasaki Heavy Industries, and Mitsubishi Heavy Industries organized an association for the study of aircraft turbine engine technology. MITI is now supporting these companies in a 50-50 project with Rolls-Royce (owned by the British government) to develop and produce the RJ-500 commercial jet engine in the 10-13-ton thrust range. This engine could power a 130-150 seat aircraft, and its development is being escalated in order to have the engine available for the Boeing 737-300, should Boeing proceed with such a project for 1984/85 deliveries.

MITI funded a Japanese industry study last year of the 120-150 seat civil transport world market for the 1980s and the 1990s and an examination of possible partners in development and production of an aircraft to serve this market. This project is designated the Y-XX.

Japanese Funding Levels. MITI is also providing the major share of funds needed to develop and produce new aircraft, and in so doing is relieving industrial giants such as Fuji, Mitsubishi, and Kawasaki of much of the economic risk in launching civil aircraft programs. Japanese FY 81 (which begins April 1, 1981) appropriations for civil aircraft and engine projects are:

-- 353 million yen (\$1.7 million) for the next phase of the Y-XX medium range passenger aircraft development program. This sum represents 75 percent of the total FY 81 Y-XX program cost of 468 million yen (\$2.3 million) for preparatory design work on the new aircraft.

-- 2,040 million yen (\$9.9 million) for development of subassemblies for the Boeing 767. This is 50 percent of the sum required by the Japanese CTDC for its 17 percent share of the airframes.

-- 4,722 million yen (\$22.8 million) for the continued development of the RJ-500 commercial jet turbofan engine. This appropriation will cover two-thirds of Japan's FY 81 share of the program, and will be spent on detailed design of engines for ground tests, analysis of developmental data, and the supply of materials and tools for eight prototype engines.

-- 3,820 million yen (\$18.4 million), authorized in FY 81, to be appropriated in FY 82, to cover two-thirds the cost of Japan's one-half share in the manufacture of eight prototype RJ-500 engines.

-- 1,910 million yen (\$9.2 million) to the National Aerospace Laboratory for continued research and development of the high by-pass ratio turbofan, 10,000-15,000 pound thrust FJR engine, suitable for subsonic commercial or military aircraft.

-- 413 million yen (\$2.0 million) to cover deficits remaining from the YS-11 turboprop program; YS-11 production was terminated in 1973.

-- 4,385 million yen (\$21.2 million) for the development of a fan jet STOL (short take-off and landing) aircraft.

Jet Engines. The substantial French and Japanese government fundings currently being made available for the CFM-56 and RJ-500 commercial turbofan engines have already been noted. These engines presently are the leading contenders to power a new generation 150-seat aircraft and the potential Boeing 737-300 derivative of the present 737.

Since such engines sell for \$2.3 million each, and each sale entails substantial follow-on sales of spare and replacement parts over the life of the engine, it is indeed worth focussing on engine sales as a separate item. A year ago, when Air New Zealand announced its purchase of five 747s, the value of the

associated engine competition was \$100 million. The engine competition for Saudia's 11 new A300-600s last December was valued at \$200 million.

Rolls-Royce (a state-owned U.K. enterprise) has had very limited success in the large jet engine market. Government supports, especially loan guarantees, have been essential to its continued participation in the market--with the RB-211 for present Boeing and Lockheed wide-bodied aircraft and the future Boeing 757. During 1979, Rolls-Royce receive 31 million pounds (\$71 million) in working capital by selling additional shares to the United Kingdom's National Enterprise Board.

On the other hand, Pratt & Whitney has invested somewhat more than a billion dollars of its own capital in developing a new 37,000 pound thrust engine, designated the PW2037, for Boeing's new 757. West Germany's MTU has an 11 percent share of this development, for which it receives German government funding.

Other Aircraft Programs. Our manufacturers of commuter-size aircraft face foreign government-supported competition in developing new 20-50 seat aircraft:

- o Sweden is supporting Saab's joint development with Fairchild of the Saab-Fairchild 340 turboprop aircraft with a capacity of 30-34 seats for airline service in 1984.
- o The United Kingdom is supporting the new 36-passenger Shorts 360, being developed by the government-owned Short Brothers LTD. of Northern Ireland for airline service beginning next year.
- o The 35-passenger CN235 (C for CASA of Spain and N for Nurtanio of Indonesia) has the support of the Indonesia and Spanish governments. (Both CASA and Nurtanio are government-owned companies.)
- o Aerospatiale of France and Aeritalia of Italy are jointly developing a 44-50 seat commuter aircraft targetted for 1985 introduction.
- o The Canadian government has provided guarantees for commercial loans to deHavilland of Canada to develop the new 32-seat Dash 8, a head-to-head competitor in the U.S. market with the Brasilia, produced by Embraer of Brasil. Both aircraft are scheduled for 1984 entry into airline service.

The Japanese and West German governments are supporting development of the MBB/Kawasaki BK 117 twin-turboshaft multi-purpose helicopter (6-7 passenger).

This listing, admittedly not complete, of government funding support for specific civil aircraft programs has focussed on development and production subsidies. International practices in terms of subsidizing the financing costs of civil aircraft purchases have recently been the subject of hearings before other committees, and so I have not attempted to address those issues here.

The Agreement on Trade in Civil Aircraft

Having identified a number of specific aircraft and engine programs that are direct beneficiaries of government funding, guarantees and other support, it is pertinent to ask what we are doing, what we can do, to assure reasonable competitive opportunity for private enterprise manufacturers that do not operate on government largess and support.

The first answer is that we needed to establish as strong an internationally agreed standard as we could for competitive practices. This we did in 1978 and 1979 in the Tokyo Round of Multilateral Trade Negotiations with the negotiation of the Agreement on Trade in Civil Aircraft and the Subsidies Code.

The preamble of the Aircraft Agreement sets forth the general policy objective of establishing an international framework governing the conduct of trade in civil aircraft. Specific objectives include the operation of civil aircraft activities on a commercially competitive basis, and the elimination of adverse effects on trade resulting from governmental support of civil aircraft development, production, and marketing.

We sought, first, to establish "commercial competition" as the basis or standard on which the civil aircraft industry, worldwide, should operate and, second, to focus attention on non-tariff disciplines. Although in the end our view prevailed, it should be noted that there was reluctance to have "fair and equal competitive opportunities" for civil aircraft companies as an expressed objective in the preamble. Indeed, at one point in the negotiations some delegations suggested, in an attempt to sanction subsidies, instead the phrasing: "the provision of fair and equal competition between domestic and imported products." Further they argued that subsidies should be provided "only to the extent that would be required for their companies to produce aircraft technically and economically competitive with U.S. produced aircraft."

(A more detailed discussion of the Agreement is provided in my testimony of October 31, 1979, before the House Subcommittee on Transportation, Aviation and Communication of the Committee on Science and Technology.)

The Agreement on Trade in Civil Aircraft recognizes that governmental involvement in and support of civil aircraft programs is a widespread phenomenon. The Agreement does not seek to terminate these existing government-industry relationships. Indeed, on the question of governmental funding of specific programs, neither the Aircraft Agreement nor the GATT Subsidies Code prohibits governments from supporting development of national industries, although both provide that governments, in support of the development, production, and marketing of civil aircraft, shall seek to avoid adverse impacts on the trade interests of others. The Aircraft Agreement, though, goes further to provide, explicitly in an attempt to establish commercial competition as the operating basis, that the pricing of civil aircraft shall include recoupment of governmental supports, so that programs benefiting from subsidies in their development and manufacture, not have a price advantage over those developed with private, commercial-risk funds.

The negotiators of both the Aircraft Agreement and the Subsidies Code recognized that export credit subsidies could distort fair

competition, and so provided for the prohibition of export subsidies. The Subsidies Code explicitly defines the grant by governments of export credits at rates below those which they actually have to pay for funds as a prohibited export subsidy. However, because this standard for officially supported export credits was more severe than that then existing in the Arrangement on Guidelines for Officially Supported Export Credits and the Aircraft Standstill Understanding, both being associated with the OECD, the Subsidies Code provides that an export credit practice in conformity with the Arrangement on Export Credits or the Aircraft Standstill would not be considered a part of the illustrative list of prohibited export subsidies annexed to the Code.

As you are aware, substantial problems have arisen in the past year regarding reform of the export credit arrangement, and other Congressional committees are presently holding hearings on these problems and on what actions the United States might take. The purpose in my raising the subject here is simply to note that international competition cannot be fair, if some competitors receive subsidized export credits and others do not. Such subsidies need to be eliminated. The only role governments should have in export credit financing is to provide guarantees where they are needed to enable export sales to go forward. Not all

exports can be sold on a cash basis, and for many markets, our private financial institutions cannot provide the long-term financing required without a government guarantee to cover the political risk.

Foreign Competitiveness and the Impact of Export Restraints

The foregoing discussion has established:

- o the strength and breadth of foreign competition,
- o the fact that foreign governments are making substantial monetary commitments to develop and promote specific civil aircraft models,
- o the relative disadvantage of private-enterprise companies competing head-on with state enterprises, when a billion or more dollars can be at risk in a single program.

The relative lack of success of foreign competition in the commercial aircraft field, prior to the Airbus, in part because of a lack of an established customer support base, has been noted. But now the Europeans have that established base, and so a foothold for making further market penetrations and for launching new aircraft programs.

Operational and maintenance considerations dictate that airlines not mix directly competitive types of aircraft or engines in their fleets. An initial order of an aircraft (or engine) type, whether for a few or for many aircraft, establishes an airline's fleet composition for an aircraft or engine type for a decade or more. Thus marketing strategies focus on obtaining a collection of relatively large orders to mount the hurdle of launching a new type, and then a series of smaller orders by airlines in a region and around the world, in order to establish a customer base for follow-on sales and to carry the cost of providing regionally available technical support.

Sales, customer support, and the airline tendency to share maintenance resources within a region work together to beget more sales. Proof of this pattern was offered again last year in the Middle East.

Boeing and Douglas owe much of their success to the development of families of aircraft, even to the extent that some airlines are known as Boeing customers, others as Douglas customers. Not until the Airbus did the Europeans seriously attempt a family concept--they now appreciate that a good working relationship with a manufacturer has proven, time and again, to be the greatest assistance to sales of future aircraft models and are conducting their product development and marketing programs with the fact in mind.

In many cases, Airbus has earned its market acceptance because it worked hard and well with a fine product, one that fit a gap in the spectrum of aircraft types, to establish itself in the world market. Unfortunately in other cases, one or another U.S. policy has hindered, delayed, or prevented a sale of U.S. products. The effect then is to encourage or compel consideration of competitive foreign aircraft and to promote sales that our competitors have proven only too eager to make. The consequence is that our foreign competitors then not only have the immediate sale, but also an established toehold (i.e., customer base) to assist their further sales; the U.S. manufacturer finds himself, not the firm with an established customer base, but the odd-man out, now having to seek sales against an entrenched customer.

There is more competition among aircraft types than is generally recognized. Quite different types of aircraft can be and are used on similar route structures, and route structures can be adjusted to fit fleet procurement decisions. Also each sale of a present generation aircraft such as the 727, 737, or DC-9 that is delayed or not made enhances the market available for launching of a new generation replacement aircraft--whether the F-29, SA-1, SA-2, or Y-XX. By increasing the potential market for a new aircraft, we facilitate our competitor's accumulation of the critical order mass needed to launch such new aircraft programs, and establish our own foreign competition.

The recent experience with delays and uncertainties regarding the issuance of export licenses has caused some airlines to insist that the U.S. manufacturer, not they, bear the burden of obtaining the license. With the lead-time of up to 2 years involved in producing a large commercial aircraft to customer specifications, substantial, nonrecoverable expenditures are committed well before a license application is timely. If a license is then delayed beyond the aircraft completion date, substantial expense ensues from storage costs and inventory financing charges. The latter alone are, at today's prime rate, for example, on the order of \$9,000 per day for a single 727.

Delays in issuing export licenses and outright denials or restrictions on sales in some markets have, as noted above, had the effect of encouraging foreign sales. And in the case of general aviation aircraft and helicopter export sales have led in a number of instances to the subsequent establishment of licensed production or co-production facilities. In such cases, where our companies do not have an established marketing presence, they find themselves disadvantaged, or disqualified, in the competition to establish a manufacturing relationship. Then both the U.S. manufacturer and his component suppliers have lost significant sales opportunities, and now have to compete against additional non-U.S. production.

U.S. Export Trade Policy

Carving out an effective trade policy for the aerospace industry requires diligent efforts on two fronts--not only must we continue to monitor other nations' adherence to the multilateral framework we have so carefully designed, we must work to eliminate those disincentives to trade which are largely self-imposed. Our efforts to achieve a freer and fairer international trading environment for aerospace goods are being matched on the domestic front with an ambitious work program to mitigate and eliminate a number of domestic disincentives to export trade.

Last September, a Report to the Congress on Export Promotion Functions and Potential Export Disincentives highlighted a number of impediments facing the U.S. exporter ranging from export controls for foreign policy and national security purposes to codes of conduct including the Foreign Corrupt Practices Act, antiboycott regulations, and antitrust laws. In assembling these disincentives the report has provided a catalyst for review and, as need be, alteration of the current USG practices which have undermined the ability of the U.S. manufacturer to sell overseas.

Desirous of making an effective U.S. trade policy not merely rhetoric, but a reality, Ambassador Brock has, through the Trade Policy Committee, undertaken an interagency work program

to review the domestic disincentives to trade. With respect to export control policy, a policy which has contributed to market losses for the aircraft industry in more than one key geographic region, the Commerce Department will lead an analysis of the costs and benefits of such policy. Commerce will, in addition, be coordinating the development of an Administration position on a Congressional proposal to establish an independent office of export controls.

The USTR is embarked on a program to define the Administration position on an issue which has become extremely important to the private sector, the Foreign Corrupt Practices Act. While we do not question the appropriateness of the objectives of FCPA, current ambiguities in the law have transformed it into an export disincentive. Those ambiguities are currently being reviewed.

Liberalizing existing tax provisions on overseas earned income is another issue of importance to the private sector; we are coordinating a work program with both the Treasury Department and Commerce to develop a position on the issue. Similar efforts are underway on consolidation/liberalization of the dual antiboycott statutes, antitrust issues, strategies for efficient use of Eximbank resources, and the development of a USG position for the resumption of the OECD negotiations on export credits. I should emphasize that we have consulted and will continue to consult closely with the private sector and the Congress as we develop our views and proposals on these disincentives.

In the Office of the United States Trade Representative we recognize that we must put our own house in order by working to mitigate the deleterious impact of various USG practices. In conjunction with our efforts on the international front, we expect that such activities will improve the ability of the U.S. manufacturer to challenge effectively the foreign competition in an increasingly competitive international market.

Conclusion

I would conclude by reemphasizing what I said at the outset:

- o foreign competition exists, and will fill market gaps we elect not to pursue
- o we should not impose restraints on exports, in the face of available substitute suppliers, except under the most limited circumstances
- o a sale lost now has a ripple effect for 15-20 years, and may well cause many more future sales to be lost
- o USG policies and programs that have the effect of establishing foreign competition and costing American jobs should be the subject of the close scrutiny.

We must also:

- o work vigorously to make financing a neutral element in aircraft sales competitions
- o work to eliminate subsidized export credits
- o continue to monitor adherence to the Agreement on Trade in Civil Aircraft, and then adapt the Agreement to changing circumstances, as necessary.

Exports of U.S. Civil Aerospace Products
In Millions of Dollars

	Complete Transport Aircraft	Complete General Aviation Aircraft	Complete Helicopters	Other Complete Aircraft**	Total Complete Aircraft
1974	\$2,654 (79%)*	\$297 (9%)*	\$110 (3%)	\$305 (9%)	\$3,366
1975	2,397 (75%)	312 (10%)	105 (3%)	398 (12%)	3,203
1976	2,468 (77%)	362 (11%)	113 (4%)	268 (8%)	3,211
1977	1,936 (70%)	398 (14%)	105 (4%)	317 (12%)	2,747
1978	2,558 (71%)	496 (14%)	156 (4%)	415 (12%)	3,625
1979	4,998 (81%)	650 (11%)	207 (3%)	322 (5%)	6,177
1980	6,173 (80%)	739 (10%)	285 (3%)	543 (7%)	7,740

	Turbine Engines	Other Engines	Parts, Accessories, Equipment	Total Civilian Aerospace Exports
1974	\$ 195	\$34	\$1,678	\$5,273
1975	186	45	1,890	5,324
1976	213	41	2,212	5,677
1977	196	31	2,069	5,049
1978	231	45	2,116	6,018
1979	323	52	3,220	9,772
1980	468	45	4,325	12,578

* As percent of value of all complete aircraft exports.

** Includes used aircraft.

Role of Exports in Civil Aircraft Sales --- Units

Number of Civil Aircraft

	<u>Shipped</u>	<u>Exported</u>
1974	15,326	5,598 (37%)*
1975	15,251	4,372 (29%)
1976	16,445	4,283 (26%)
1977	17,943	4,368 (24%)
1978	18,965	4,399 (23%)
1979	18,492	5,115 (28%)
1980	13,691	4,434 (32%)

Number of Commercial Transports

	<u>Shipped</u>	<u>Exported</u>
	332	227 (68%)*
	315	181 (57%)
	238	158 (66%)
	185	101 (55%)
	244	111 (45%)
	388	200 (52%)
	415	237 (57%)

Number of Helicopters

	<u>Shipped</u>	<u>Exported</u>
1974	828	420 (51%)
1975	864	437 (51%)
1976	757	356 (47%)
1977	848	346 (41%)
1978	904	399 (44%)
1979	1,019	428 (42%)
1980	1,272	659 (52%)

Number of General Aviation Aircraft

	<u>Shipped</u>	<u>Exported</u>
	14,166	4,428 (30%)
	14,072	3,512 (25%)
	15,450	3,539 (23%)
	16,910	3,611 (21%)
	17,817	3,612 (20%)
	17,055	3,995 (23%)
	11,881	3,559 (30%)

* Exports as percent of shipments.

Role of Exports In Civil Aircraft Sales -- Dollar Value
Dollars in Millions

<u>All Civil Aircraft</u>		<u>Commercial Transports</u>		
	<u>Shipped</u>	<u>Exported</u>		
			<u>Shipped</u>	<u>Exported</u>
1974	\$ 5,091	\$3,366 (66%)*	\$3,993	\$2,655 (66%)*
1975	5,086	3,203 (63%)	3,779	2,397 (63%)
1976	4,706	3,211 (68%)	3,192	2,468 (77%)
1977	4,691	2,747 (59%)	2,889	1,936 (67%)
1978	6,480	3,625 (56%)	4,332	2,558 (59%)
1979	10,803	6,177 (57%)	8,167	4,998 (61%)
1980	N/A	7,740	N/A	6,173

Helicopter

	<u>Shipped</u>	<u>Exported</u>
1974	\$ 189	\$110 (58%)*
1975	274	105 (38%)
1976	285	113 (40%)
1977	251	105 (42%)
1978	326	156 (48%)
1979	436	207 (47%)
1980	N/A	285

General Aviation Aircraft

	<u>Shipped</u>	<u>Exported</u>
	\$ 909	\$297 (33%)*
	1,033	312 (30%)
	1,229	362 (29%)
	1,551	398 (26%)
	1,822	496 (27%)
	2,200	650 (30%)
	2,507	739 (29%)

* Value exported as percent of value shipped.

THE 50 LEADING EXPORTERS

RANK 1979	COMPANY	PRODUCTS	EXPORTS (\$000)	FORTUNE 500 SALES (\$000)	RANK	EXPORTS AS PERCENT OF SALES	
						%	RANK
1	Boeing (Seattle)	Aircraft	3,967,900	8,131,000	29	48.80	1
2	General Electric (Fairfield, Conn.)	Generating equipment, aircraft engines	2,772,100	22,480,800	9	12.34	28
3	Caterpillar Tractor (Peoria, Ill.)	Construction equipment, engines	2,499,900	7,613,800	33	32.84	4
4	McDonnell Douglas (St. Louis)	Aircraft	1,788,425	5,279,531	54	33.86	3
5	E.I. du Pont de Nemours (Wilmington, Del.)	Chemicals, fibers, plastics	1,784,000	12,571,800	16	14.63	29
6	United Technologies (Hartford)	Aircraft engines, helicopters	1,417,257	9,063,358	26	15.66	17
7	Weyerhaeuser (Tacoma, Wash.)	Pulp, logs, lumber, wood products	978,000	4,422,063	77	22.11	19
8	Lockheed (Burbank, Calif.)	Aircraft and related support services	956,000	4,069,808	82	23.49	9
9	Westinghouse Electric (Pittsburgh)	Generating equipment, defense systems	879,840	7,332,000	37	12.00	27
10	Raytheon (Lexington, Mass.)	Electronic equipment	734,000	3,727,830	92	19.66	12
11	Northrop (Los Angeles)	Aircraft and related support services	701,577	1,542,477	204	44.33	2
12	Union Carbide (New York)	Chemicals, plastics	602,000	9,178,500	25	6.56	44
13	Archer-Daniels-Midland (Decatur, Ill.)	Soybean meal and oil, wheat, corn	584,808	2,287,836	153	24.56	8
14	Signal Companies (Beverly Hills, Calif.)	Trucks, engines, chemicals	544,700	4,241,200	75	12.84	24
15	Rockwell International (Pittsburgh)	Electronic, automotive, and industrial equipment	536,000	6,466,100	45	8.29	40
16	Philip Morris (New York)	Tobacco products	521,235	6,144,081	49	8.48	36
17	Occidental Petroleum (Los Angeles)	Agricultural and chemical products, coal	499,000	8,554,785	21	5.72	50
18	Kaiser Aluminum & Chemical (Oakland, Calif.)	Aluminum	496,800	2,926,500	113	16.96	14
19	Textron (Providence)	Helicopters, chain saws, metal products	489,000	3,392,874	100	14.41	19
20	Deere (Moline, Ill.)	Farm equipment	480,000	4,933,104	80	9.73	33
21	R.J. Reynolds Industries (Winston-Salem, N.C.)	Tobacco products	476,000	7,133,100	38	6.67	42
22	PMC (Chicago)	Industrial and farm equipment	462,398	3,307,484	102	13.96	21
23	International Harvester (Chicago)	Farm equipment, trucks	447,000	8,392,042	27	5.33	46
24	Dresser Industries (Dallas)	Oil-field and industrial equipment	435,500	3,457,400	86	12.60	25
25	Monsanto (St. Louis)	Herbicides, textile fibers, specialty chemicals	408,400	6,192,600	48	6.56	43
26	American Motors (Southfield, Mich.)	Automotive vehicles and parts	343,288	3,117,049	108	11.01	30
27	Universal Leaf Tobacco (Richmond, Va.)	Tobacco	302,788	978,174	292	30.85	5
28	Whitman Companies (Tulsa)	Phosphate products, fertilizer	296,000	1,850,013	182	16.00	16
29	Allied Chemical (Morristown, N.J.)	Fibers, plastics, chemicals	294,000	4,538,835	89	6.48	45
30	Dana (Toledo)	Motor-vehicle components	280,996	2,781,136	120	10.54	31
31	International Paper (New York)	Pulp and paper products	283,000	4,805,000	86	6.15	47
32	Kennecott Copper (Stamford, Conn.)	Nonferrous metals, abrasives, resistant materials	279,500	2,433,837	143	11.48	26
33	Colanese (New York)	Fibers, chemicals	278,000	3,148,000	107	8.94	36
34	Borg-Warner (Chicago)	Cooling systems, automotive parts	268,000	2,717,400	124	9.86	32
35	Combustion Engineering (Stamford, Conn.)	Oil-field and industrial equipment	253,901	2,757,504	121	9.30	34
36	Warner Communications (New York)	Movies, records, video games	253,338	1,648,027	199	15.37	18
37	TRW (Cleveland)	Truck, auto, and aircraft parts, oil-field equipment	251,700	4,580,303	88	5.52	48
38	Morris (Melbourne, Fla.)	Communications equipment	247,900	982,111	290	25.24	6
39	Bendix (Southfield, Mich.)	Automotive parts, aerospace products	245,200	3,828,700	88	6.40	46
40	Cummins Engine (Columbus, Ind.)	Engines and engine components	244,000	1,770,834	192	13.78	22
41	St. Joe Minerals (New York)	Coal, feed	242,485	1,148,105	258	21.12	11
2	Louisiana-Pacific (Portland, Ore.)	Pulp, lumber, wood products	236,000	1,301,910	236	18.13	13
3	Intemat'l Minerals & Chemical (Northbrook, Ill.)	Potash, phosphates, industrial minerals	235,900	1,474,700	217	16.00	15
4	Cessna Aircraft (Wichita)	Aircraft	233,000	939,311	301	24.81	7
5	Teledyne (Los Angeles)	Industrial and electronic equipment, engines	229,629	2,705,600	126	8.49	37
6	White Consolidated Industries (Cleveland)	Home appliances, steel-mill machinery	225,900	2,910,114	173	11.24	23
7	Emerson Electric (St. Louis)	Electronic components	219,917	2,614,110	130	8.41	39
8	Bald Kist (Atlanta)	Peanuts, soybean products, poultry	215,577	1,639,808	200	13.15	23
9	Meteoro (Schaumburg, Ill.)	Electronic components	211,531	2,713,795	125	7.79	41
3	Weller-Kilde (Cifton, N.J.)	Hydraulic cranes, fire-protection systems	210,141	2,284,146	155	9.20	35
TOTALS			31,916,571	224,385,396			

ANNEX C

Census of Commercial Jet Aircraft

Aircraft in Airline Service (Aircraft on Order) by Region

<u>Manufacturer/ Model</u>	<u>North and South America</u>	<u>Europe</u>	<u>Middle East and Africa</u>	<u>Asia and Australia</u>	<u>World Total</u>
Aérospatiale					
Caravelle	19	96	12	2	129
Concorde	—	14	—	—	14
Airbus Industrie					
A300	20 (9)	52 (33)	11(19)**	35(29)	118 (90)
A310	—	(61)	(18)	—	(79)
Boeing					
707	219	111	114	65	509
720	9	27	30	6	72
727	1,280 (96)	174 (7)	80 (9)	75 (4)	1,609 (116)
737	312 (47)	173 (49)	101 (14)	83 (23)	669 (133)
747	170 (9)	113 (26)	46 (10)	130 (29)	459 (74)
757	(90)	(19)	—	(3)	(112)
767	(125)	(4)	—	(32)	(161)
British Aerospace					
BAC1-11	57	88 (3)	4	14	163 (3)
Trident	—	54	—	32	86
BAC 146	(5)	—	—	—	(5)
Dassault					
Mercure	—	10	—	—	10
Fokker					
F-28	16 (3)	32	25	52 (7)	125 (10)
Lockheed					
L-1011	113 (21)	26 (7)	24 (11)	31	194 (39)
McDonnell Douglas					
DC-8	227	77	19	54	377
DC-9	477 (73)	296 (24)	11	79 (14)	863 (111)
DC-10	177 (19)	89 (4)	10	52 (4)	328 (27)
TOTALS -- in service	3,096	1,432	487	710	5,725
-- on order	497	237	81	145	960
Percent of World Total (in service and on order combined)	54%	25%	8%	13%	100%

* Drawn from "World airliner census No. 18" in Flight International.
December 27, 1980. Data as of December 1, 1980.

** Includes Saudia Order for A300-600.

Mr. BINGHAM. Thank you, Mr. Piper. We will hear next from Mr. Kopp.

**STATEMENT OF HARRY KOPP, DEPUTY ASSISTANT SECRETARY,
BUREAU OF ECONOMIC AND BUSINESS AFFAIRS, DEPARTMENT
OF STATE**

Mr. KOPP. Thank you, Mr. Chairman. I understand the pressures on you and I will try to be brief and summarize my statement. I am very pleased to be here to testify on the competitiveness of the U.S. aircraft industry, which for the past several years has been facing a serious challenge from abroad.

Since 1976 our share of the commercial jet fleet outside the Communist countries has fallen from 90 percent to about 70 percent, with the European Airbus taking up the bulk of this difference. The Airbus has found a niche in the market and is selling well in Europe and in the Middle East. We expect that trend will continue. In the future, the Airbus is going to move into the long-haul market and compete with us for intercontinental sales; and a decade away, in the 1990's, is the specter of Japanese competition both in engines and perhaps in airframes as well, as Dr. Piper has explained.

U.S. POLICIES' IMPACT ON INDUSTRY

Against this background of increasing competition from Europe and Japan and from such less likely sources as Brazil and Indonesia, I think it is appropriate to examine the impact of various U.S. Government policies on the ability of our civil aircraft industry to continue to export.

Particularly in the Middle East, U.S. Government policies have had an impact on the competitive position of our industry. Although jet aircraft sales in the Middle East as a whole were nearly \$2 billion last year, U.S. suppliers claimed only 13 percent of that market, which is really a dismal showing compared to the way we perform in the rest of the world. The Airbus captured 87 percent of the Middle East market. This represents a loss of perhaps 40,000 to 50,000 jobs in the United States and lost export earnings of perhaps \$1.3 billion. These losses in the Middle East were due, in our view, not to technical problems, not to any lack of sales effort on the part of our industry, and not really to the quality of the competition, although, admittedly, the competition is strong, but to other considerations—problems of export finance, questions of U.S. export controls applied for foreign policy reasons, to the political support given to Airbus exports by European governments, and to a lesser extent to some of the confusion created in the region by the provisions of the Foreign Corrupt Practices Act.

These problems are not all soluble, to be sure, but they need to be addressed, and I expect the current situation can be improved.

FINANCING

With regard to financing, the Airbus normally is sold with much better export financing sales than the Export-Import Bank ordinarily will offer. Airbus is financed with 85 percent government-backed credits, usually at a rate of 7.95 percent and 10-year terms.

The Eximbank has not been able, with very rare exceptions, to meet that kind of competition. Export financing for an item as expensive as heavy aircraft is a major consideration in purchasing decisions.

FOREIGN POLICY EXPORT CONTROLS

Foreign policy controls in the Middle East have also had quite a negative impact on U.S. sales. During 1979 and 1980 we have received applications for, and failed to approve, although not denied, licenses for sales of more than \$500 million in U.S. aircraft. That has probably had some additional effect that is not so readily visible. We suspect that additional licenses have not been sought because the prospect of approval was so slender.

FOREIGN CORRUPT PRACTICES ACT

The provisions of the Foreign Corrupt Practices Act have perhaps also been an inhibiting factor. Many companies, including some aircraft corporations, are uncertain as to what kind of activity is open to prosecution under that act. Corporations that employ good counsel, as most corporations do, have conservative counsel; they are advised to eschew all sorts of activities that might conceivably lead to prosecution.

The ambiguities of that act have been a problem. There has been concern generally in the Middle East among Middle Eastern private and government officials about section 911/913 of the I.R.S. Code on taxation of foreign earnings, regarded by many Middle Eastern officials as a sign of U.S. official disinterest in exporting and dealing abroad. This is also a problem, although I think much less so in the civil aircraft field than in other types of transactions.

LACK OF GOVERNMENT INDUCEMENTS

As Dr. Piper mentioned, in the area of Government inducements to the industry, the manufacturer, production and research and development as well as to exports, the United States is generally behind the Europeans and the Japanese, although we do have some programs in the defense area that compensate for our lack of programs in the civil area.

All of these problems affect the competitiveness of our industry, which is certainly not what it used to be. We can no longer take for granted American domination of the world market for civil aircraft; this is an area in which increasingly we will face competition from Europe, 10 years from now, very serious competition from Japan, and we need to address problems of our industry, those problems created by Government in particular today, before those problems become acute and undermine the strength of our position around the world. Thank you.

[Mr. Kopp's prepared statement follows:]

PREPARED STATEMENT OF HARRY KOPP, DEPUTY ASSISTANT SECRETARY, BUREAU OF
ECONOMIC AND BUSINESS AFFAIRS, DEPARTMENT OF STATE

I am pleased to have this opportunity to appear before the Subcommittee in order to testify on the question of the international competitiveness of the aircraft industry. The Subcommittee's interest in this subject is timely because of the importance of the industry to the domestic economy and the serious effect of foreign policy export controls and other disincentives on civil aircraft exports, particularly in the Middle East.

For the last several years, the U.S. aircraft industry has been under serious challenge. In 1976, about 90% of the free world's commercial jets were U.S.-built. With the introduction of the Airbus, however, our share began to decline, and today we can claim only about 70%. The Airbus--the A-300 and A-310--is a good plane brought to market at the right time to threaten our lead. It combined payload, range and economy attractively for shorter and intermediate hops, finding a niche in the market where U.S. manufacturers had no exact competitor aircraft in production to meet it at that time. The airbus has sold extremely well in Europe and the Middle East and has made inroads elsewhere.

The outlook is for increasing competition from Airbus and others. Airbus has planned a new generation of single aisle

and twin aisle carriers, the SA-1 and SA-2 for short hauls, the TA-9, an improvement on the 300 series, and the TA-11 long-haul plane to compete for the intercontinental market. Japan hopes to enter the market with engines and perhaps air-frames. In the future, competition from such unlikely sources as Brazil and even Indonesia, for commuter-type aircraft, should not be discounted. Moreover, the challenge to U.S. firms is in our own domestic market as well as abroad. At the same time, the industry appears to be becoming increasingly internationalized, with joint ventures and component supply networks criss-crossing national borders. For example, although we regard the European Airbus as a competitor, approximately one-third of the value of each Airbus sold is in U.S. components, with jet engines the most important of these.

I will leave details concerning the industry and its prospects to other Administration witnesses. It is against this background, however, that the impact of government policy on the industry should be assessed.

Losses in the Middle East

In no other area in the world were the successes of the competition so spectacular, and our own sales performance so dismal as in the Middle East last year. Jet aircraft sales in the region climbed to \$1,977 million, of which U.S. suppliers won only \$259 million or 13%, as compared to U.S. sales of over \$1.5 billion the year before. Airbus, in contrast, selling \$1.7 billion, captured 87% of the Middle Eastern market. Using a Department of Commerce formula that \$1 billion in exports

gained or lost equals 40,000 jobs, the drop from 1979 to 1980 of \$1.3 billion, if not made up in sales elsewhere, equates to 50,000 jobs lost for only one year.

In an excellent report received just this month, our Regional Civil Air Attache in Tunis notes that the enormous decline in U.S. fortunes was not likely due to technical considerations, a lack of effort on part of our manufacturers, nor even to the quality of the Airbus. Rather, pivotal factors most mentioned by his contacts were:

- (1) Financing
- (2) Political considerations, including foreign policy controls
- (3) High-level political support for Airbus
- (4) The U.S. Foreign Corrupt Practices Act

Financing

Export-Import Bank financing has played a crucial part in U.S. aircraft sales in the past two and a half years, typically accounting for about 40% of the bank's direct loan portfolio. Nevertheless, the industry on average has received a lower percent of direct credit cover as a portion of total export value than other U.S. capital goods exports, 44% last year as against 63% for non-aircraft purchases. Today, Europeans do better by Airbus, with terms we have not been able to meet. Airbus offers 85% of export value, repayable in francs, marks, and dollars at a composite rate of 7.95% over 10 years. Normally, EximBank cannot come close to this; although in several highly competitive cases, it has offered 75-10-15 coverage, with the supplier and the purchaser covering the 10% and 15% respectively. In such deals, EximBank's interest rate today typically would be 9.25% at 10 year term. In other cases when competition is

less direct or not verified, EximBank support has been of necessity much lower and in some cases has consisted of guarantees only, with no direct credits.

It would be in the long-term interest of all industrialized countries to bring the export financing price war under control, and indeed, in an ideal world, financing costs would be determined by market forces alone. In this regard, we are continuing efforts with other industrial nations to work out better ground rules to limit credit competition but with little success so far. In the meantime, our aircraft industry is faced with the very real problem of how to meet the superior European government-backed credit terms.

Foreign Policy Controls

The impact of foreign policy controls has been particularly strong in the Middle East. South African sales have also been affected, and to some extent sales to Chile, with the denial until recently of Export-Import Bank facilities. Our anti-boycott legislation does not appear to have directly influenced sales so far. Nor have munition controls had a noticeable effect.

The requirement for a validated license under the Export Administration Act of 1979 affects aircraft exports primarily in two areas: exports to police and military entities in South Africa and exports to the four countries determined to have repeatedly provided support for acts of international terrorism - Iraq, Libya, Syria and the People's Democratic Republic of Yemen. For South Africa, we have denied applications to sell about \$2 million in aircraft to the police and military. Sales to civilian end users have been routinely approved.

Restrictions on aircraft sales to the four countries designated as repeated supporters of terrorist acts has resulted in our failure to approve licenses for sales of more than \$500 million. Additional licenses may not have been sought because the prospect of approval was so slender. Whenever the U.S. Government withholds a license, the reliability of the United States as a commercial supplier can come under question. The Arab Air Carriers Organization passed a resolution last year decrying the denial of aircraft to some of its members. U.S. aircraft manufacturers have told us that their customers are now demanding penalty clauses in sales contracts in case of export license denial.

FCPA, Other Disincentives

The U.S. Foreign Corrupt Practices Act appears to have been a complicating factor in sales in the Middle East. There are complaints that FCPA has caused fears and misunderstandings that lead to confused negotiations. A contact is reported commenting in regard to a loss to Airbus that "only Americans are naive and innocent."

There is also concern in the Middle East about section 911/913 of our tax code and the difficulty that this causes in recruitment of U.S. technicians. This problem, however, does not appear to figure heavily in the case of aircraft sales.

Government Inducements to Aircraft Industry/Sales

All industrialized countries, including our own, provide government inducements to aircraft manufacture and sales, but

on balance, our industry clearly trails. European government inducements typically consist of developmental grants, low or no interest development loans and guarantees, highly favorable export financing terms, marketing subsidies, and currency exchange subsidies. Japan provides a similar but perhaps less comprehensive range of inducements. We have, of course, provided Export-Import Bank support, and for defense ends, a number of supports in facilities and R&D assistance. An important difference separating our industry from most others is that most foreign firms are nationalized or have at least some equity participation by governments.

As the Subcommittee is aware, a separate code, the Agreement on Trade in Civil Aircraft, was negotiated during the recently completed Tokyo Round of trade negotiations. This has been signed by the U.S., the European Community, Austria, Romania, Canada, Japan, Norway, Sweden and Switzerland and is in force. Article VI of the Agreement states that signatories "should seek to avoid adverse effects of trade in civil aircraft in the sense of Articles 8.3 and 8.4 of the Agreement on Subsidies and Countervailing Duties," i.e., that injury to another signatory's domestic industry or serious prejudice to the interest of another signatory should be avoided. Displacement of another country's exports in a third country could fall under the concept of "serious prejudice". Article 11, however, recognizes that subsidies are widely used as important instruments for the promotion of social and economic policy objectives, and the right of signatories to use such subsidies is not restricted. What is left unclear and yet to be sorted

out is where legitimate economic and social objectives end and injury and prejudice begin. There is room for wide difference in interpretation, and substantial burden of proof will rest on the complainant in cases brought up under the Agreement.

In this testimony, I have restricted myself largely to a description of the situation our aircraft industry faces, with reference to the impact of government policy. I have deliberately avoided speculating on what policy is likely to be, or ought to be, in the future. Given the emergence of strong competition from the Airbus, the U.S. Government can no longer take for granted American dominance of the world market for civil aircraft. A healthy export sector continues to be a major foreign policy goal of the United States and an important element in maintaining our influence in the world.

Mr. BINGHAM. Thank you very much.

Mr. Harr.

STATEMENT OF KARL G. HARR, JR., PRESIDENT, AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC. (AIA)

Mr. HARR. Thank you, Mr. Chairman. I have with me Mr. George Prill, my assistant for commercial aircraft matters, who is one of the principal architects, from the private sector side, of the Agreement on Trade in Civil Aircraft. He is an expert in the matters we are addressing today.

I am most pleased to have heard these three distinguished government witnesses say very much the same things I would like to say and would like to have you believe, but let me run through my fairly short statement before we get to questions. Answers to some of the more specific and complex questions you posed in your invitation will be submitted for the record.¹

STRONG AND COMPETITIVE INDUSTRY

To put some of the things I will be saying in proper perspective, it is important to remember that the aerospace industry is a strong and competitive sector of the economy. While profits as a percent of sales were down from 5 percent in 1979 to 4.4 percent in 1980, we continued to show strong growth in sales, backlog and exports. Sales in 1980 are expected to reach a record \$50.5 billion, up from

¹ See app. 2.

\$45 billion a year ago, slightly over half of which are now commercial, as opposed to military, sales.

Another positive indicator last year was the industry's overall backlog, which exceeded \$97 billion, up from \$75 billion at the end of 1979. While some of this increase in backlog can be accounted for by inflation and stretched out deliveries, it also includes new orders. Unfilled domestic and foreign orders for commercial transport aircraft, however, numbered 762 as of September 30, 1980, compared with 828 at the end of 1979. The decrease reflects a healthy rate of shipments, coupled with a decline in firm orders.

Turning now to an area of direct interest to this subcommittee, aerospace exports increased nearly 25 percent in 1980 over the previous year, growing from \$11.7 billion to \$14.6 billion. While imports also increased substantially, the aerospace industry's net positive contribution to the Nation's balance of trade continued to be high, up from \$10.1 billion to \$11.3 billion. Rounding out this profile, I can report that our industry employed 1.203 million people at the end of 1980, the highest figure recorded for the industry since 1969.

CHANGING COMPETITIVE ENVIRONMENT

However, there are clouds on the horizon. We are a strong, innovative industry, but we are also fragile. If there is one message I would like to leave with you today, it is that it is becoming increasingly apparent to all of us that we are living in a different world—economically, socially, and politically—than that which we have known for the past 20 years. Today we see a number of new variables which seriously threaten U.S. supremacy in the aerospace field. To quickly tick off some of the factors which have changed, let me start with accelerating fuel prices.

FUEL COSTS

Fuel costs to the Nation's airlines have risen from 18 percent of operating costs in 1975 to 31 percent in 1980. This has forced airlines to raise fares, which in turn has had a negative impact on passenger traffic and thus on airline profits and their ability to purchase new equipment.

The only way to break this vicious circle, from a competitive standpoint, is to build the optimal fuel-efficient aircraft, a task requiring many billions of research dollars. Because it has become axiomatic that now and in the future airlines will have no choice except to buy the most fuel-efficient aircraft available, regardless of country of manufacture, the competitive equation has been changed. Now, more than ever, the United States requires a continuing commitment, both public and private, to basic aeronautical research. The manufactures, of course, have already committed billions to three new airplane programs aimed, in part at conserving fuel.

DECLINING U.S. PRODUCTIVITY GROWTH

A second complicating factor which was not so apparent 20 years ago is a sharply declining rate of overall U.S. productivity growth.

Although the U.S. aerospace industry has been more effective than average in this respect, since 1975 overall U.S. productivity has grown only 8.9 percent, while productivity in Germany has increased 22 percent, in France 24 percent, in Italy 24 percent, in the United Kingdom 6 percent, and in Japan 28 percent. In fact, increasing our productivity growth rate is perhaps the one thing the United States can do to improve its position in world markets independently from other, noncontrollable world-market factors. Thus, the aerospace industry shares with many other U.S. industries a profound hope for the success of steps being recommended by the present administration designed to aid in reequipping American industry to meet foreign competition.

GOVERNMENT-IMPOSED IMPEDIMENTS

The attitude of the Government in the past 10 years or more, I might add, has been somewhat less than helpful. The U.S. Government, in fact, has contributed many formidable negative factors to the U.S. competitive situation. It is our view, for instance, that substantial cuts in the Export-Import Bank may yield something less than impressive budget savings, while at the same time undermining the big-ticket, high-technology industries which contribute so much to the Nation's balance of trade.

Another Government-imposed impediment to free trade of high-technology goods derives from political export controls. In the case of proposed sales to several Middle East countries, for example, it has been our finding that the stated criteria for withholding of export licenses have not been fulfilled and that millions of dollars in aircraft sales have been lost. To state it most simply, Mr. Chairman, we question the application of a standard whereby the U.S. Government refuses its manufacturers the right to export to such countries, while continuing to allow the purchase of commodities, namely oil, from countries subject to such foreign policy controls. There has been no demonstrated advantage to doing this, and the disadvantages are many.

STRENGTHENING OF FOREIGN COMPETITION

All other factors aside, the sheer growth in manufacturing and marketing muscle of our European competitors is the biggest single element in the competitive quandary in which we find ourselves today. The U.S. aerospace industry has long had a lion's share of world markets, but continuation of this state of affairs is no longer by any means certain. Maintaining our share will be difficult in light of the factors I have mentioned, but particularly so in the face of our strong, competent, and well-financed competition.

The strength of the foreign competition we face is evidenced in the trend in Airbus sales. Airbus claims to have increased its share of the widebodied-jet market from 3 percent to 38 percent between 1976 and 1979. As of December 1 of last year, 38 of the world's airlines had placed orders for the Airbus and 114 of the aircraft were in service. On the order books were 292 firm orders and 157 options, for a total of 449 A300-A310 transports. Planes in service, firm orders, and options total 563 airplanes. The Airbus backlog, in fact, constitutes one-third of the total backlog of all American, Eu-

ropean, and Japanese manufacturers. The fact that airlines tend to stick with their choice of aircraft through at least one generation means that orders lost now are likely to stay lost for 20 years or more.

Although these industries are increasingly formidable opponents technologically, the U.S. aerospace industry can continue to compete readily with them in terms of quality of product. The peculiar advantage they enjoy over us is in terms of marketing. Many foreign aerospace companies and airlines are wholly or in large part government owned and not only the economies but also the national prestige of their parent countries have been directly tied to the success of these aeronautical industries. Their governments provide impressive incentives to aid them in foreign sales, including highly aggressive financing terms.

PRESENT DEFICIENCIES LEAD TO LONG-TERM INDUSTRY DECLINE

Inevitably, these sets of economic factors and governmental attitudes will take their toll. In fact, as the above-cited figures demonstrate, they already have. Furthermore, between now and 1990 the estimated world civil transport market will be in the neighborhood of \$130 billion, with potential rotorcraft sales estimated at an additional \$25 billion. Since it is no longer economically feasible to build an aircraft for anything less than worldwide sales, the United States will have to capture a major portion of that market to survive in anything like its present form.

In short, today we do not look to the future with the same kind of optimism with which we have always greeted it in the past. We are having to run at full speed just to maintain our position. Now that our overall business has tilted toward the commercial end of the spectrum, we find ourselves competing with highly competent, nationally supported companies to sell a relatively small number of highly priced items in a common world marketplace.

The stakes are inordinately high for the industry and for the nation. Every sale consummated or lost usually determines the course of decades of business. Thus, any deficiency in our technology (such as failure to market the most fuel-efficient aircraft possible); any failure to provide competitive, dependable financing or other marketing terms; any deficiency in our relative productivity; any significant gap between our export promotion programs and those of other countries or any denial or serious shortage of one of several critical materials can spell long-term economic disaster for us.

In conclusion, let me repeat that we are strong and capable. However, as an industry, and as a nation, unless we maintain our technological superiority, improve the trading environment, get a fair shake in government support of exports comparable to that extended by our competitors and eliminate unnecessary export disincentives, we may find today's delicate balance has been tipped and the U.S. aerospace industry is ending up going the way of others who have sold the day to profit the hour.

Thank you, Mr. Chairman.

[The following charts were supplied as part of Mr. Harr's statement:]

CHART A: AEROSPACE INDUSTRY SALES
(billions of dollars)

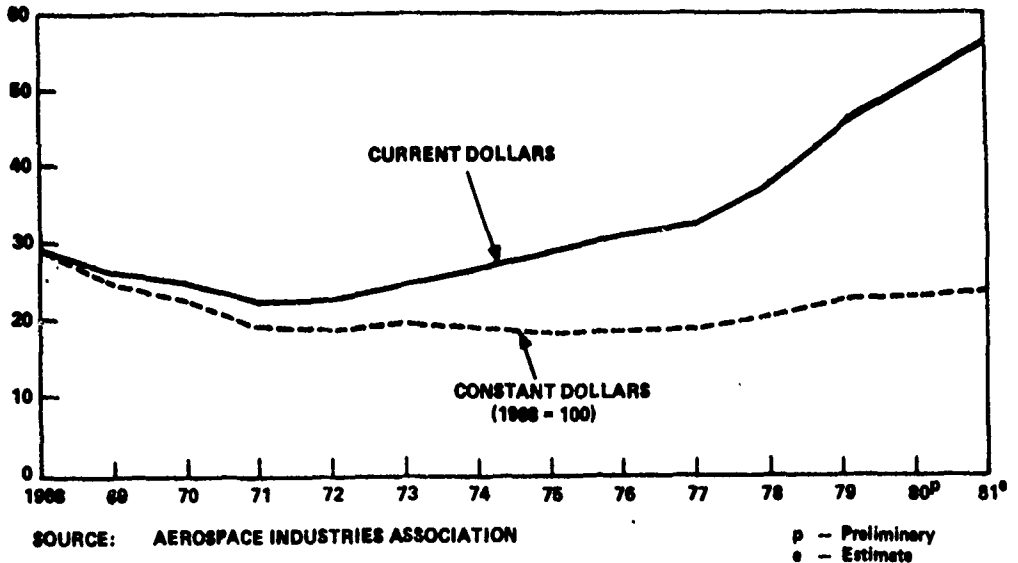


CHART B: AEROSPACE INDUSTRY SALES BY PRODUCT GROUP
(billions of current dollars)

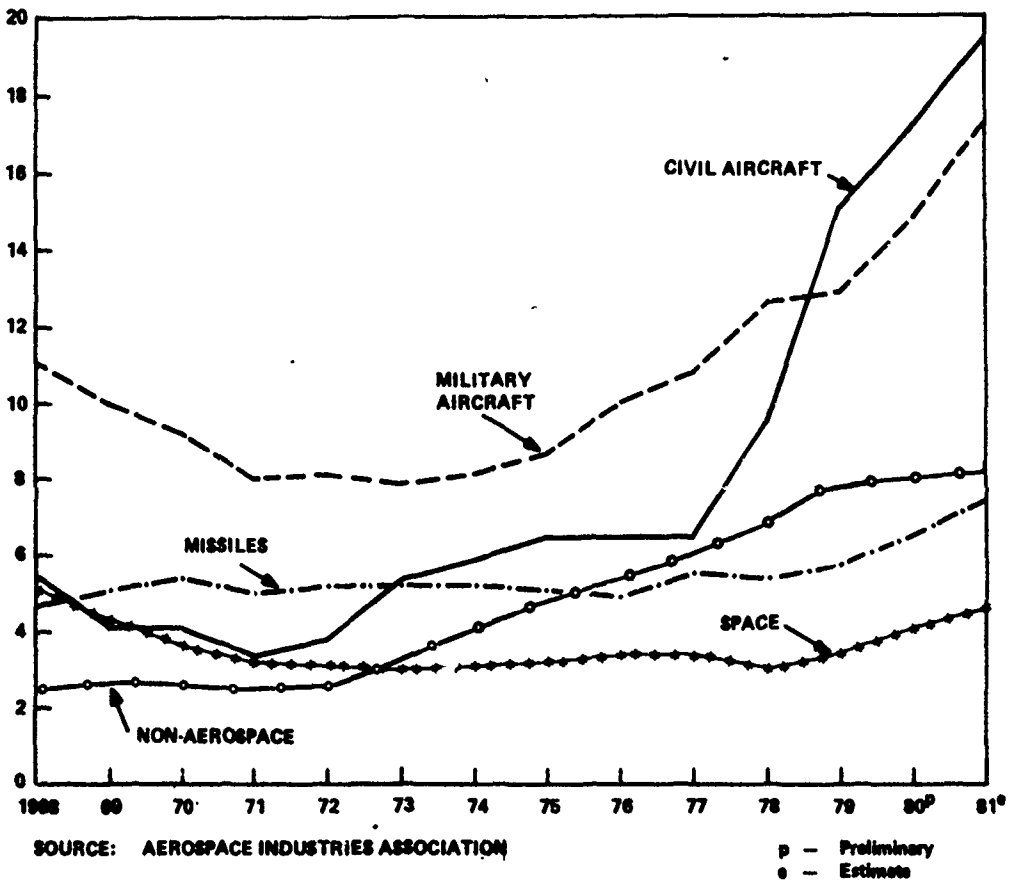


TABLE III
CIVIL AIRCRAFT SHIPMENTS
Calendar Years 1968-1981

Year	NUMBER OF AIRCRAFT SHIPPED				VALUE (Millions of Dollars)			
	TOTAL	Commercial Transport Aircraft	Helicopters	General Aviation	TOTAL	Commercial Transport Aircraft	Helicopters	General Aviation
1968	14,022	702	522	13,698	\$ 4,267	\$ 3,789	\$ 57	\$ 421
1969	13,505	514	534	12,457	3,598	2,939	75	584
1970	8,076	311	482	7,283	3,546	3,158	49	339
1971	8,158	223	469	7,466	2,984	2,584	69	321
1972	10,576	227	575	9,774	3,308	2,660	90	558
1973	14,709	294	770	13,645	4,665	3,718	121	826
1974	15,326	332	828	14,166	5,091	3,993	189	909
1975	15,251	315	864	14,072	5,086	3,779	274	1,033
1976	16,445	238	757	15,450	4,706	3,192	285	1,229
1977	17,943	185	848	16,910	4,691	2,889	251	1,551
1978	18,965	244	904	17,817	6,482	4,332	328	1,822
1979	18,462	388	1,019	17,055	10,758	8,144	403	2,211
1980 (p)	13,691	415	1,272	12,004	13,283	10,317	640	2,326
1981 (e)	13,714	384	1,330	12,000	13,245	9,950	735	2,560

Source: Aerospace Industries Association and General Aviation Manufacturers Association.

(p) Preliminary.

(e) Estimate.

TABLE IV
AEROSPACE INDUSTRY BACKLOG
Calendar Years 1968-1980
(Millions of Dollars)

Year	GRAND TOTAL	Total U.S.		Aircraft, Engines, & Parts		Missiles & Space Propulsion	Other Aerospace		Non-Aerospace*	
		Government	Other Customers	U.S. Gov't.	Other		U.S. Gov't.	Other	U.S. Gov't.	Other
1968	\$30,749	\$16,343	\$14,406	\$ 8,150	\$12,409	\$ 5,083	\$ 1,851	\$ 983	\$ 1,576	\$ 697
1969	29,297	13,298	13,999	7,089	12,099	4,338	2,001	880	1,163	727
1970	24,705	12,882	11,823	5,913	9,800	4,522	1,986	805	827	852
1971	24,579	13,997	10,582	6,221	8,059	4,780	2,232	1,042	1,314	931
1972	26,922	15,322	11,600	7,027	8,605	5,272	2,018	972	1,816	1,212
1973	29,661	16,695	12,966	7,815	8,550	5,670	1,819	1,078	2,242	2,487
1974	35,516	20,889	14,627	9,789	9,602	6,643	1,926	1,665	2,997	2,894
1975	35,038	22,168	12,870	10,751	8,141	6,435	1,983	2,088	3,340	2,320
1976	39,702	24,141	15,561	11,950	8,929	6,286	2,046	3,496	4,248	2,747
1977	45,309	26,119	19,190	12,471	12,592	6,743	2,761	3,447	4,490	2,805
1978	57,160	30,223	26,937	14,897	18,972	7,557	4,029	3,668	4,269	3,748
1979										
1st qtr	63,598	32,385	31,213	15,495	21,615	7,057	5,096	3,814	5,299	3,222
2nd qtr	67,706	33,336	34,370	15,900	26,668	6,696	4,958	4,193	6,357	2,934
3rd qtr	68,892	32,962	35,930	15,480	28,432	6,399	5,220	4,024	6,462	2,875
4th qtr	75,009	36,174	38,835	17,576	30,454	7,270	5,530	4,806	6,572	2,801
1980										
1st qtr	84,546	35,066	49,480	16,731	37,298	7,946	5,433	5,188	6,322	5,628
2nd qtr	89,211	36,036	53,175	17,072	40,759	7,975	5,806	5,664	6,658	5,277
3rd qtr (e)	94,150	40,250	53,900	19,200	42,500	8,200	5,950	5,450	7,300	5,550
4th qtr (e)	97,300	42,150	55,150	20,550	43,550	8,300	6,100	5,600	7,600	5,600

Source: Bureau of the Census, Current Industrial Reports, MQ-37D; AIA estimates.

* Non-aircraft, non-missile, and non-space vehicle products and services produced by establishments whose principal business is the development and/or manufacture of aerospace products.

(e) Estimate.

TABLE V
CIVIL TRANSPORT AIRCRAFT BACKLOG
as of December 31, 1975 - 1979, and September 30, 1980

	TRANSPORT AIRCRAFT ON ORDER					
	Dec. 31, 1975 ^r	Dec. 31, 1976 ^r	Dec. 31, 1977 ^r	Dec. 31, 1978 ^r	Dec. 31, 1979 ^r	Sept. 30, 1980
TOTALS (Domestic & Foreign)						
No. of Aircraft on Order	291	242	345	622	828	762
Value (Millions of Dollars)	\$5,022	\$3,568	\$6,182	\$13,098	\$21,322	\$21,496
Company and Model						
<u>Boeing</u>	<u>130</u>	<u>155</u>	<u>242</u>	<u>426</u>	<u>611</u>	<u>570</u>
B-707	9	5	4	1	-	-
B-727	60	106	157	195	212	151
B-737	29	22	36	111	159	167
B-747	32	22	45	89	106	85
B-757	-	-	-	-	40	42
B-767	-	-	-	30	94	125
<u>Lockheed</u>	<u>44</u>	<u>25</u>	<u>18</u>	<u>40</u>	<u>56</u>	<u>51</u>
L-1011	32	24	18	40	56	47
L-100-30	12	1	-	-	-	4
<u>McDonnell Douglas</u>	<u>117</u>	<u>62</u>	<u>85</u>	<u>156</u>	<u>161</u>	<u>141</u>
DC-9	65	47	55	101	108	112
DC-10	52	15	30	55	53	29
TOTAL FOREIGN ORDERS						
No. of Aircraft on Order	201	109	165	304	436	429
Percent of Total Order	69.1%	45.0%	47.8%	48.9%	52.7%	56.3%
Value (Millions of Dollars)	\$3,906	\$2,096	\$3,785	\$7,100	\$11,848	\$12,944
Company and Model						
<u>Boeing</u>	<u>82</u>	<u>50</u>	<u>95</u>	<u>194</u>	<u>312</u>	<u>321</u>
B-707	9	5	4	1	-	-
B-727	20	13	35	51	74	63
B-737	28	12	16	77	127	131
B-747	25	20	40	65	88	79
B-757	-	-	-	-	19	19
B-767	-	-	-	-	4	29
<u>Lockheed</u>	<u>30</u>	<u>17</u>	<u>11</u>	<u>17</u>	<u>33</u>	<u>33</u>
L-1011	20	16	11	17	33	29
L-100-30	10	1	-	-	-	4
<u>McDonnell Douglas</u>	<u>89</u>	<u>42</u>	<u>59</u>	<u>93</u>	<u>91</u>	<u>75</u>
DC-9	40	30	41	58	58	51
DC-10	49	12	18	35	33	24

Source: Company reports to AIA.

^r Data revised for 1975-1979 to exclude options previously included.

Statistics 80-95
Series 02-01AEROSPACE EXPORTS AND IMPORTS
Calendar Years 1975-1980
(Millions of Dollars)

TABLE VI - EXPORTS OF AEROSPACE PRODUCTS

	1975	1976	1977	1978	1979	1980(p)
GRAND TOTAL	\$7,792	\$7,843	\$7,581	\$10,001	\$11,747	\$14,570
TOTAL CIVIL	5,324	5,677	5,049	6,018	9,772	12,578
Complete Aircraft	3,203	3,211	2,747	3,625	6,177	7,740
Transports	2,397	2,468	1,936	2,558	4,998	6,173
General Aviation	312	362	389	496	650	739
Helicopters	165	113	105	156	207	285
Other, Including Used	389	268	317	415	322	543
Aircraft Engines	231	254	233	277	375	513
Jet & Gas Turbine	186	213	196	231	323	468
Internal Combustion	45	41	37	46	52	45
Parts, Accessories & Equipment	1,890	2,212	2,069	2,116	3,220	4,325
TOTAL MILITARY	2,468	2,166	2,532	3,983	1,975	1,992
Complete Aircraft	1,306	967	1,186	2,243	838	761
Transports	235	151	317	232	162	216
Helicopters	123	102	84	82	61	65
Fighters & Bombers	905	513	686	1,707	494	319
Other, Including Used	43	201	99	222	121	161
Aircraft Engines	94	71	76	64	74	71
Jet & Gas Turbine	83	58	64	59	61	59
Internal Combustion	2	8	7	2	6	3
Missile Turbine	9	5	5	3	7	9
Parts, Accessories & Equipment	771	649	632	1,068	492	461
Rockets, Guided Missiles and Parts	297	479	438	608	571	699

TABLE VII - IMPORTS OF AEROSPACE PRODUCTS

	\$ 747	\$ 576	\$ 731	\$ 943	\$1,624	\$3,246(p)
GRAND TOTAL						
Military Aircraft	112	64	50	5	2	5
Civil Aircraft	80	91	260	287	510	921
Transports	5	8	100	58	200	255
General Aviation	55	67	109	147	260	469
Helicopters	7	4	18	28	22	52
Other, Including Used	13	12	33	54	28	145
Aircraft Engines	229	145	131	283	328	696
Jet & Gas Turbine	228	144	129	281	324	680
Internal Combustion	1	1	2	2	4	16
Parts, Accessories & Equipment	326	276	290	368	784	1,624

Source: U. S. Department of Commerce; AIA estimates.

(p) Preliminary.

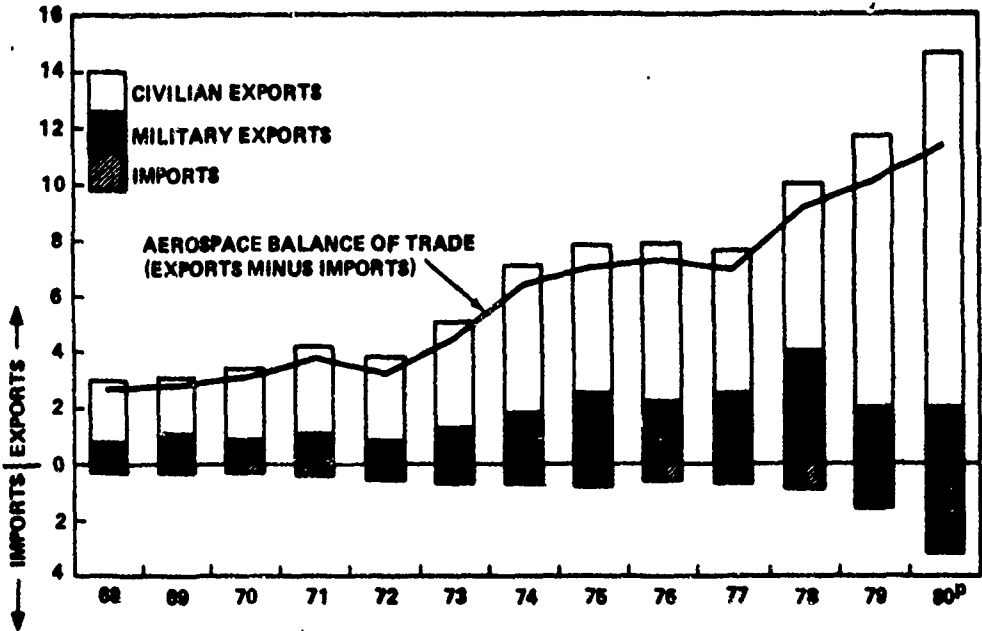
* Effective 1980, import data include two new commodity groupings: non-military aircraft parts, and aerospace products previously exported from the U.S. Deducting these two groupings for comparability with data of previous years results in a preliminary 1980 net total of \$2,844 million.

TABLE VIII - AEROSPACE BALANCE OF TRADE: VALUES IN CURRENT AND 1968 CONSTANT DOLLARS

NET BALANCE OF TRADE:	Current	\$7,046	\$7,857	\$6,880	\$ 9,068	\$10,123	\$11,324(p)
	Constant	4,575	4,467	3,992	4,919	5,052	5,169
AEROSPACE EXPORTS:	Current	7,792	7,843	7,881	10,001	11,747	14,870
	Constant	5,060	4,843	4,418	6,431	6,862	6,651
AEROSPACE IMPORTS:	Current	747	876	731	943	1,624	3,246
	Constant	486	366	426	612	810	1,482

Source: U.S. Department of Commerce; AIA estimates.
(p) Preliminary.

CHART E: AEROSPACE EXPORTS, IMPORTS, AND TRADE BALANCE
(billions of current dollars)

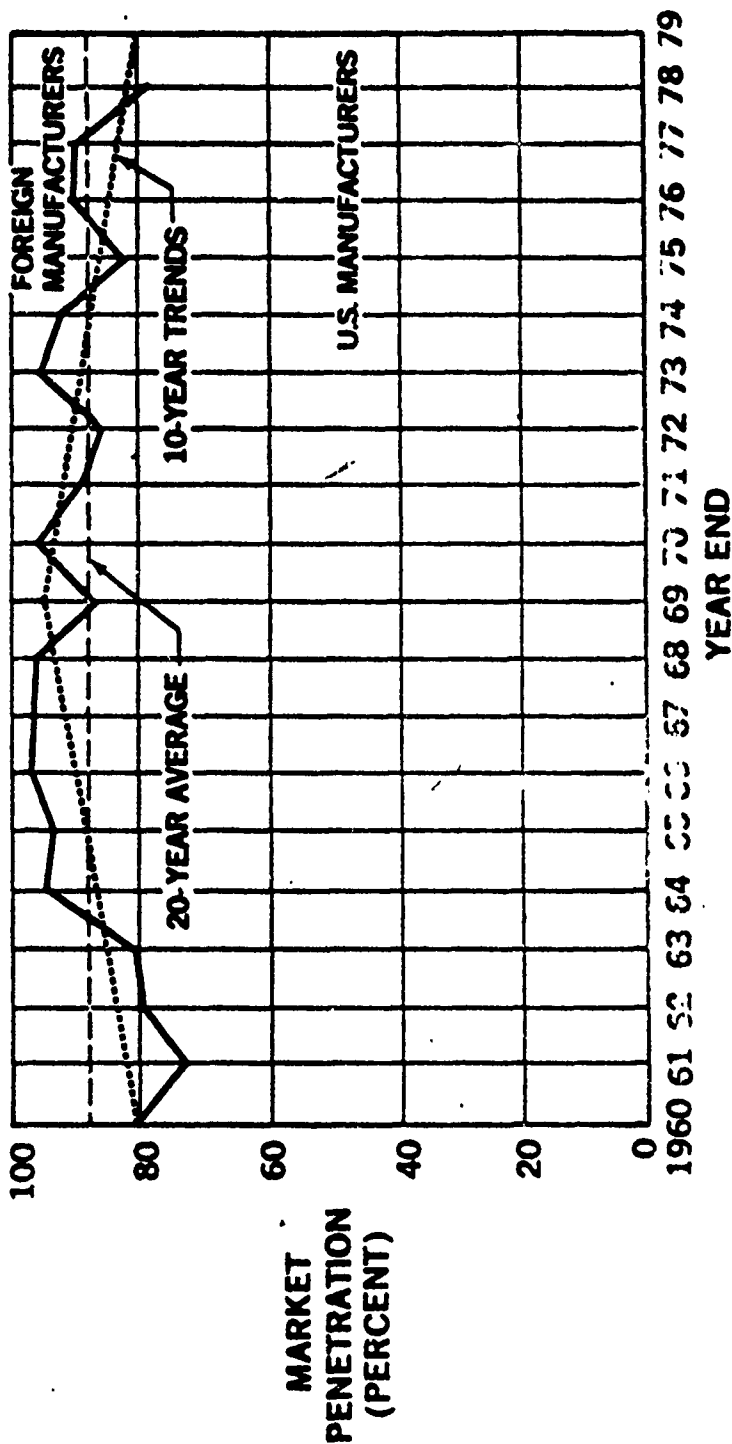


SOURCE: DEPARTMENT OF COMMERCE DATA; AIA FORECASTS

FREE WORLD COMMERCIAL JET AIRLINERS

COMPETITIVE MARKET PENETRATION SUMMARY

BOOKED DOLLAR BASIS



7-PL-30002C-2A

Mr. BINGHAM. Thank you very much, Mr. Harr.
We thank you, gentlemen.

LONG PERIOD OF AMERICAN MARKET DOMINATION

While I certainly believe the American aircraft industry is to be complimented enormously for its achievements over the years, I can't help but wonder why it has taken so long for this foreign competition to catch up with our industry? It is 35 years since the end of World War II during which time we have been dominant in this market. We held that position in spite of the existence of the very disincentives which are now commonly cited as disincentives for American exports. Inevitably, I suppose, foreign competition is catching up, but why has it taken them so long to catch up?

Mr. HARR. There are many answers, Mr. Chairman.

The whole history of the aerospace industry here and abroad is pretty much a post-World War II history. The position we found ourselves in as a nation following World War II was tremendously advantageous to the development of our industry. We had an undamaged economic base and we had the great advantage—as Dr. Piper pointed out—of constituting a tremendous domestic market which gave a potential volume sale of a product justifying the development cost of it. They were highly fragmented to a considerable extent in Europe and they stayed fragmented for a considerable period of time.

I do not want to get too heavily into the possible relationship between our military and space programs to our commercial aircraft development, because that proposition is usually overstated and incorrectly utilized, but there is no question it has had some bearing on our technical skills and our plants.

We had a brain drain from Europe 10 or 15 years ago. Young Englishmen, Dutchmen, and Germans were coming to the United States to work, which aided us and depleted the European supply. They searched for a long time, in vain, for the kind of successes they have had lately, for the formula which has presently brought them to this position. It is not an easy thing for the Germans, French, and British to get together on a working basis over a long period of time; but their appetite was enormous, an appetite dictated by the growing market, dictated by the fact that the aircraft industry, to a degree not found in every industry, has national prestige overtones; it has national security overtones in terms of the training of the young people in the skills. Their appetite was enormous in a number of ways, including the development of now some highly competitive products that closed the gap.

I don't want to dwell on the negative side, but some of the things that are hitting us pretty hard are fairly recent. The export control policies on a foreign policy basis are recent. Some of the interest rates on required financing are fairly recent. Some of the negatives hit us and some of the positives hit them and came together.

Mr. O'DAY. Mr. Harr, I expect, is too modest to mention one factor that is clear to us in the Commerce Department about this industry in the past few decades; that is, that it is the one industry that stands out with regard to reinvesting its profits in R&D and in product development. It is clear that the industry sought the oppor-

tunities; they took the risks, did the investing necessary and took the market.

Mr. HARR. I have to say thank you very much, but I also have to say that that is something that has turned a little negative right now, too.

Mr. BINGHAM. That does not explain, Mr. O'Day, why it took the other countries so long to become competitive.

NEAR PROHIBITIVE ENTRY COSTS

Mr. KOPP. The entry costs in this industry are enormous; it is not an easy thing to get into. You need a very large market to begin. You have to have the prospect of a lot of orders before you begin to build the aircraft.

The inability of European companies, particularly across borders, to get together had a lot to do with the delay in the development of European entry, particularly in the medium-range and long-haul aircraft. The first venture in this area, the Concorde, was by no means a commercial success. The Japanese entry now is a major decision for them; it will absorb a great deal of capital; it will have quite an impact on the Japanese capital markets. It is a difficult industry because it requires a lot of land and a lot of resources that are scarce in Japan. They appear to be committed now to entry in that industry, using technology that they will require from western manufacturers, engine technology—Rolls-Royce, some airframe technology from American manufacturers. I think we will see them as very major factors in the world market 7, 8, 10 years from now.

FRAGMENTED COMPETITION

Mr. PIPER. Mr. Chairman, if I might join my colleagues in taking a crack at your question, I would emphasize the market competition aspect. I think the Europeans did not have the practice that we have had of free market competition. They early on developed technically capable aircraft. They were the first to introduce commercial jet transports, the four-engine variety, the two-engine variety, and the supersonic variety, but they were accustomed in a fragmented sense to building an aircraft principally to meet the requirements of their national airline and they didn't have an inclination, a sensitivity, to the competitive factors in the marketplace.

The success of our companies has hinged very largely on their ability and their record of building a family of aircraft. The Airbus is the 10th commercial jet transport produced for sale in Europe; it is the only one for which there have been more than 280 orders; it is the only one that has sold very extensively at all. We have tried some of them here in the United States but they have not evolved to meet market requirements of the national airline, they have not had the flexibility or the competitiveness to satisfy the broad spectrum of market requirements.

Airbus was a concerted—I like to say almost political—effort to put together a competitive program, and they brought in some American marketing leadership. They now know the importance of establishing a customer base. They didn't have that experience before; they didn't have worldwide sales. They do now. I think that is why Airbus is different.

Mr. BINGHAM. Thank you very much. I will come back with further questions.

In the meantime, I recognize Mr. Lagomarsino.

Mr. LAGOMARSINO. Thank you, Mr. Chairman. I want to say, gentlemen, I very much appreciate the testimony by all of you.

Several of you did refer to the role of the Government in a negative way. I would agree with that; I think that has been one of the major problems.

I am pleased by the positive tone that I hear from all three of the Government witnesses as well as from Mr. Harr, in what you have had to say. That does not mean that we can solve all the problems just by having a better relationship, but it certainly means a way by which we can start to do that. We can talk about the problems in a friendly, cooperative way, looking at it in view of what our own real national interests are, not only economically, which is the primary concern of this subcommittee, but also from a national security view as well.

EXPANDING MILITARY SALES

Mr. Harr, you did not say much about military sales. I understand why, because again, that is not the purpose of this hearing, but could you tell me how increasing military orders, as I am quite sure will happen here very soon, will affect what you have been saying here this afternoon, how that will affect the overall health of the industry?

Mr. HARR. You are referring to the proposition to increase our own domestic weapons systems?

Mr. LAGOMARSINO. Correct.

Mr. HARR. We are confident that if that is programed as we think it should be, and as it is intended to be, it will not impinge on the capacity of the commercial transport industry to take full advantage of what market opportunities it has. I will admit the situation is delicate and it will have to be programed extremely cautiously.

As you know, some of your colleagues are conducting hearings now on the capacity of the United States to expand its defense industrial base, surge, or whatever, and focusing on some of the potential bottlenecks in such expansion, but as of the moment we do not think that is any problem in terms of impinging on domestic commercial capability. The main production lines are set up and designed pretty much for the immediate future. I will not pretend that I am an expert, but I don't hear that from my members.

Mr. LAGOMARSINO. You think we can do it?

Mr. HARR. I think we can do it.

Mr. LAGOMARSINO. Is competition among U.S. aircraft manufacturers counterproductive in seeking overseas sales?

Mr. HARR. I don't think so. Going back to Dr. Piper's point, which I wish I had made, I think one of the basic answers to America's superiority when it was more clear was the fierce domestic competition between the two or three principal producers of each kind of aircraft, whether it was commercial or military. When that competition became as finely honed as it did, and as fierce as it did, the product that came out of the other end was a pretty

competitive bird, whether it was a commercial transport or military airplane. I think the competition is a saving grace of our kind of system. They worked Saturdays and Sundays, whereas if they worked for the Government in building an airplane they might have gone home Saturdays and Sundays.

Mr. LAGOMARSINO. It might come out looking like a camel, too.

TRYING TO REACH AN INTERNATIONAL CODE OF CONDUCT

Mr. KOPP, looking at the Foreign Corrupt Practices Act, have we negotiated at all with our allies overseas to try to come to some sort of code of conduct that would apply universally?

Mr. KOPP. We have negotiated. We have not succeeded in reaching an agreement that is really satisfactory. I expect negotiations will continue, but I am by no means optimistic that we can reach a satisfactory agreement on the sort of rules internationally that we apply to ourselves. I just don't think other countries will go that far.

Mr. LAGOMARSINO. Without meaning to put words in your mouth, do our friendly allies say something like, "If you want to shoot yourself in the foot, go ahead; be our guest"?

Mr. KOPP. No, actually they don't have to. They might have been pushed to that point. The less developed countries, who have a very strong interest in this subject, have generally been very uncomfortable with the U.S. opposition, and our inability to push our ideas across on the less developed countries created a situation in which we don't have to have a confrontation with our friendly allies, if you follow my meaning. I don't think the prospects for successful negotiation are very great, although we will keep trying.

Mr. LAGOMARSINO. I think it is important to keep trying, because obviously some of the things some of our companies were accused of are things I think we all agree should not be permitted or tolerated or sanctioned. On the other hand, in trying to do away with those kinds of practices it is obvious, to me anyway, that we have gone too far or at least the perception is that we have gone too far.

As one of you was saying earlier, conservative lawyers, and I don't know any other kind, when they are advising their clients, always say, "when in doubt, don't." A lot of people, unless they are certainly very financially able, are just not going to take the chance, at least until they see how somebody else fares doing the same thing.

Mr. KOPP. We will go as far as we can internationally to get agreement on curbing illicit payments and bribery, but I do not know that we can reach the kind of agreement that really has teeth, that is powerful.

Mr. LAGOMARSINO. Just one more question, Mr. Chairman, if I might.

DECLINE OF SALES IN MIDDLE EAST

Is there any specific reason why our sales fell so dramatically in the Middle East last year?

Mr. HARR. That is quite a little history, Mr. Lagomarsino; that is a case where we did hurt ourselves quite demonstrably, quite quantifiably, in terms of sales by not granting export licenses to a

number of applicants, which had ripple effects far beyond their orders. Whether we did it maliciously or with outraged righteousness, it does not matter; there was resentment. Some of it had connections with the political overtones in the Middle East that induced other people not to apply for licenses. The term of art is that America is an "unreliable supplier." That is death when that gets to an airline because an airline competes with its competitor by having the best equipment in place the soonest. When a good buyer is coming down the line and gets in line for delivery positions, and if those delivery positions are shaken up, the temptation to go elsewhere is enormous in order to stay alive. So it has ripple effects.

Mr. LAGOMARSINO. Would anybody else care to comment?

Mr. KOPP. I could not refer to a specific problem. There are lots of problems that came together last year, including the quality of the competition, which has improved a good deal, the financing problem and the perception of the United States as an unreliable supplier. There may have been, on the part of some buyers, political disinclination to buy American products, highly visible, big-ticket products. All of these things came together at once. It is a trend that is not irreversible, but it was a blow.

Mr. LAGOMARSINO. Dr. Piper.

Mr. PIPER. I think I might note that one airline had expressed preference for U.S. aircraft and its government reversed the decision. It is very difficult to imply or say this was the factor.

I think what is more pertinent for our examination now is that a combination of factors, as Mr. Kopp pointed out, was at play and it is important now to look immediately at the consequences. France has a role, an ownership role, in some of the airlines in the region. There are a number of factors at play. It will be difficult to get back into that market, but U.S. companies remain hopeful.

Mr. LAGOMARSINO. Mr. O'Day.

Mr. O'DAY. Just a comment, if I may, on one of the points you raised, and that is the Foreign Corrupt Practices Act. That was another factor. We have with the Justice Department a task force underway that will send a report to the President in another month, focusing on the vagaries of the act.

As you said, the advice that goes to corporations is not to move because there is uncertainty with regard to the legal standards they have to come up to. That is a serious problem, not only with regard to large companies, it is also a much more serious problem with regard to smaller companies that don't have the sophisticated legal talent to take them through the complicated route to a sale. At least in that area we hope to have some progress quite quickly and perhaps we can see our way through to at least removing the uncertainties without changing our standards with regard to overall conduct.

Mr. LAGOMARSINO. Thank you.

Thank you, Mr. Chairman.

Mr. BINGHAM. Mrs. Fenwick.

PROSPECTS OF CONSULTING FEES

Mrs. FENWICK. Thank you, Mr. Chairman.

It is often said that one man's bribe is another man's consultant fee. I saw a report in the paper at the time some of our problems were revealed in the press. The chancellor of the Exchequer was asked what was done in England about this. Those who work in some countries where these fees are common know that they can indeed be a problem. His answer was, "We have no such problem." He explained that a consultant fee, once reported, is entirely legal. The only question comes with the size, as compared to the contract. I don't know why we don't approach things in that simpler manner.

I don't see what we can expect when someone goes into a country where he doesn't know anybody and hopes to do business. He might find someone in charge of handling that kind of business. If that is the custom of the country, why do we not declare any payment to our Treasury Department or Internal Revenue Service as a consultant's fee? Would that be damaging, difficult?

Mr. HARR. There is a whole range of scenarios, Mrs. Fenwick. There is uncertainty within the range. The range varies primarily with the customs of the host country or the purchasing country.

Mrs. FENWICK. Could they not all be termed "consultant's fees"? I don't understand why we get so uptight about these things when other people seem to be able to handle them in a legal, open, proper way.

Mr. HARR. Against my better judgment, Mrs. Fenwick, may I turn to Mr. Prill here?

Mrs. FENWICK. I see him laughing, so I am sure it is something we would all like to hear.

STATEMENT OF GEORGE PRILL, ASSISTANT FOR COMMERCIAL AIRCRAFT MATTERS, AEROSPACE INDUSTRIES ASSOCIATION, INC.

Mr. PRILL. I am not at all clear on that, but the problem with the consultant-fee approach you mentioned is that most companies do use consultants in the United States; that is standard practice. The Foreign Corrupt Practices Act refers to knowing or having reason to know. If you are running a marketing organization and have consultants in the field, most people feel, or their legal people do, that the marketing director has a reason to know what that consultant is doing. Therefore, there is a very, very real concern that we can even use consultants.

Mrs. FENWICK. Why don't we clean it up in the law and simply say that consultants' fees are legal when they are properly reported according to law?

Mr. PRILL. Does the record show applause?

Mr. KOPP. I understand that an amendment along those lines is under consideration by some Members of the Senate and that such an amendment might be submitted in the near future.

Mrs. FENWICK. I have been thinking about it for a long time, ever since I read that in the paper. We should have a lawful and proper system for dealing with a common and widespread situation, and require our companies to live up to that law.

AIRCRAFT FINANCING

Now, the second thing I wanted to ask you about is this: I thought that we had a trade agreement with our allies as to the interest that would be charged for loans, and the terms of the loans and everything else, including subsidies, for example, that are paid to the companies. There is an agreement on all that, is there not?

Mr. PIPER. There is an understanding, yes, Mrs. Fenwick. The difficulty with it is that it does not provide very effective discipline. The participants in the OECD have arrangements on export credits which cover most products except civil aircraft. Civil aircraft are governed by an understanding which dates to 1975. Generally, it provides that official export credit institutions, in our case the Export-Import Bank, shall not grant export credits in excess of 90 percent of the transaction in question for a term more than 10 years, at an interest rate that is a little vague in that understanding, but it is generally taken to be not more favorable than a 7.5- or 8.0-percent interest rate than prevailing.

The Treasury of the United States has not been able to raise money, nor have the private institutions, at 7.5 or 8 percent for some years.

Mrs. FENWICK. Have the foreign companies been able to raise money?

Mr. PIPER. As Mr. Kopp pointed out in his statement, the Europeans offer export credit financing on the order of 7.95 percent. The actual practice today for aircraft financing is on the order of 9¼ percent when in dollars. In Europe, when you ask what the Airbus competition is doing, it is a little bit more difficult, because that comes in either an all-dollar package on the order of 9¼ percent or a package of 40 percent D-marks/40 percent French francs/20 percent in U.S. dollars. The British share of the financing is not in pounds sterling, but in dollars.

Mrs. FENWICK. I see they still use American engines in the Airbus?

Mr. PIPER. Yes, engines, avionics, a number of other components.

EXPORT LICENSING

Mrs. FENWICK. I have some questions as to which countries will be sold equipment that could be used militarily. This is a problem, it seems to me, that we should face as a very high policy matter. We know that in the case of one country, C-130's were used in a military way very detrimental to their neighbor. There is a section in the law requiring that Congress be notified when equipment worth \$7 million, which is military in nature or could be used for military purposes, is to be sold to any of the countries labeled as "terroristic" by the State Department. Now, what is your opinion of that? What should we do about jets sold to countries which are unfriendly?

I want to be specific. We know that the ambassador has told us of some events, and further, according to the report in February 1980, when we were seeking bases for facilities in the Persian Gulf region, the President of Iraq said that no foreign troops, armed forces, or facilities should be present in any Arab country in any

form or on any pretext or excuse. In other words, foreign presence should be rejected by Arab States.

However, just recently, on March 13, last week, in Baghdad, the Defense Minister of Iraq said, "In a hot spot like the Middle East it is probably unacceptable that there should not be good coordination with our friend, the Soviet Union." Are we now planning to send large, commodious jet planes to be coordinated with the Soviet Union? I can understand how it must be for you, trying to sell to a variety of countries ordinary civilian aircraft, but what do we do with the problem of terrorism in the world?

We know perfectly well that terrorists are trained and sent around the world. We know that people are assassinated. Iraqis were arrested in Vienna once with a whole suitcase full of explosives. The same thing happened in West Berlin, but it was luckily discovered in time. Now, this is clearly a country with big and rather aggressive ideas. I wonder if it is wise for us to sell them equipment? I know you will say, "Somebody else will if we don't."

SALES TO IRAQ

Mr. KOPP. Let me try to answer that very difficult question, Mrs. Fenwick.

The administration has before it a number of requests for export licenses for aircraft to Iraq from a number of American companies. These applications have been before us, some of them for well over a year, others for 9 or 10 months, something like that, without decision. During this period we have been in constant contact with Iraq. That Government is not uncommunicatively hostile.

Mrs. FENWICK. They have not recognized us yet.

Mr. KOPP. We have an interest section in Baghdad. As I say, our relationship is not one of complete hostility. The political situation in Iraq is not set; it is moving, changing all the time. Iraq is engaged in a war with Iran, the outcome of which is unknown. The planes in question are civilian; they are not warplanes; they are for civilian use. The Iraqis have now a fleet that consists entirely of Boeing aircraft. When the war broke out with Iran, they moved that fleet out of Iraq and stationed it, I think, in Amman, or perhaps in Beirut; I believe in Amman.

Mr. HARR. Amman.

Mr. KOPP. So there is no question that during the current hostilities these planes are not being used by the Iraqi Air Force in any way.

Mrs. FENWICK. What were those planes?

Mr. KOPP. They are all Boeings.

Mr. HARR. 737's and 727's; those are passenger airplanes.

Mr. KOPP. The entire Iraqi civil fleet was moved out of the country. There is a high price to be paid in terms of our international competitiveness in using exports as a political symbol, strength of exports as a political symbol. It may be from time to time that a price should be paid; but that price is rising rapidly as our competition develops in Europe.

First of all, there is the likelihood that supplies we don't provide are acquired from other sources, as you mentioned. More than that, there is a long-term loss. So that the price is going up as the

competition strengthens. That really does need to be taken into account.

There is also the question of who should pay the price. Why should it be Boeing, Lockheed, and McDonnell-Douglas and not somebody else? This problem of equity is not a soluble problem. I raise it. I do not mean to suggest that there is some magic trick by which this problem is solved.

We are examining currently the question of these licenses for Iraq. The administration, to my knowledge, has not made a decision. If a decision is made to go ahead and approve these licenses, we will, of course, notify the Congress beforehand of our intent to do so.

ALLIED ACCORD

Mrs. FENWICK. I wonder if it would be possible to engage some major allies—France, Great Britain, West Germany, and Italy—in some kind of agreement on this, in some kind of an agreement that these internationally organized terrorist groups and those countries that give them harbor and encourage them and train them and pay them will not be accepted as customers? We are running into this all the time.

The United States in an order signed by President Carter forbade the export of drugs that are banned in the United States. But according to testimony we heard the other day, this is unheard of in any other country. In fact, drugs that are banned for the inhabitants of some European countries are expressly allowed to be exported. They are relieved from the ban. So we are constantly putting our country in a unique and difficult position. Perhaps the time has come when we ought to ask our allies to join in sanctions against practices we know are dangerous to the people of this world, and certainly internationally organized terrorism is one of them. I wonder if we have given any thought to that? I think we ought to apply this also in the drug area.

Mr. HARR. May I make one point in this connection which deals with only a slice of the problem but it is a large slice? It is a currently relevant one.

When you are talking about—and I admit that our impetus, our bias, of course, is to make the sale—but we are no less concerned with and horrified by certain of the most notable individuals in the Middle East who have make a career out of supporting terrorism.

Two things: One, of course, there is the availability elsewhere unless you have a monopoly—

Mrs. FENWICK. Or an agreement.

Mr. HARR [continuing]. Or an agreement; it doesn't do that much harm to anybody but us.

Second, the fact that at the same time, for compelling domestic reasons, we wish to freely go ahead and import our oil from that same country because we want to drive our cars makes us a little less wedded to principle and it hurts.

Mrs. FENWICK. It is an effort to deplete their natural resources which is practically our duty, you might say.

Mr. HARR. I think that fellow who gets on a jet airplane and goes through a terrorist act knows that he is merely going on an air-

plane to Rome or getting on a Swiss Air flight. There is no relationship between the act of terrorism and the delivery of airplanes. There may be a relationship between punishing a country and withholding of anything as long as there is no other availability.

When you get to the point that you are saying we will not sell, we know it has nothing to do with the act, but we will continue to do business as usual in other areas, then we feel a little bit singled out.

Mrs. FENWICK. It would not only refer to equipment specifically for military purposes. It would apply to all things that could be used for military purposes, certain large trucks, which could carry tanks and so on. You would not be singled out.

Mr. BINGHAM. On the subject of the provisions of law prohibiting improper payment, first of all, it should be stated that this subcommittee does not have jurisdiction in that area.

Second, I think it should be stated that, as I understand the law, they do apply only to payments made to representatives of governments. Of course, the real abuses that Congress reacted to in passing that legislation involved very large sums of money, millions and millions of dollars. Granted, I think we, who listen to businessmen in various parts of the world, would agree that there is need for clarification. I doubt that the solution is as simple as suggesting that they should be allowed to pay consultants' fees.

Mr. Kopp, you have indicated that political considerations, including foreign policy controls, are the second most important factor in our decline in sales in the Middle East. How do we know that? Do we have statements from governments that would indicate that?

Mr. KOPP. I do not mean to rank order the problems, the causes, of our problems in the Middle East. I do not want to mislead you. I don't want to try to rank order these difficulties. The foreign policy controls are indeed a serious problem. We have that from government officials in the Middle East, from airline officials as well as from officers of U.S. corporations. Our primary information comes from high government officials of Middle Eastern countries that are in the market for aircraft.

APPLICABILITY OF CERTAIN EXPORT ADMINISTRATION ACT CRITERIA

Mr. BINGHAM. Mr. Harr charges in his statement at the bottom of page 4 that criteria in the Export Administration Act for the withholding of export licenses have not been fulfilled, I presume referring to foreign policy controls?

Mr. HARR. Yes, sir.

Mr. BINGHAM. What is your reaction, Mr. Kopp, to Mr. Harr's charge in that regard?

Mr. KOPP. I would like Mr. Harr to elaborate before I respond.

Mr. HARR. I can't do it completely off the top of my head. There are six criteria. With respect to one particular transaction it seems to us that it would be very hard to claim any of the criteria apply, much less six of them, in terms of having the effect of producing the result that was intended.

Mr. BINGHAM. Could you be specific, Mr. Harr, to which transactions you refer?

Mr. HARR. I will try to answer your question. "One, the probability that such controls will achieve the intended foreign policy purpose in light of other factors, including availability from other countries of the goods or technology proposed for such control." That would presumably mean that if the reason for the controls were terrorism, it would have to have some effect on reduction in terrorism. It is pretty hard to claim, talking about Libya.

Second, the criteria states, "The compatibility of proposed controls with the foreign policy objectives of the United States, including the effort to counter international terrorism and with overall U.S. policy toward the country which is the proposed target of the control" must be determined. I am submitting that it is hard to see from my point of view how it is either going to affect terrorism in view of the fact that we have a purchase arrangement with them for their oil, among other things. It is inconsistent with the overall policy with the in country.

If you can do something like we can do with Cuba, and have good reason to, meaning cut off their water both in and out, that is one thing. If you selectively use some nonmilitary, non-national-security item as a slap on the wrist, it seems to me it is liable to become an indulgence.

Mr. BINGHAM. Before Mr. Kopp comments, might I just point out and remind you that these are not criteria, strictly speaking, that the State Department must find before foreign policy controls are proposed, but they are matters that should be taken into account in making that decision.

At the time we were drafting the provisions of the Export Administration Act we fully recognized there were cases where these considerations might not be found to exist. I remember one case that I think I have mentioned on several occasions, whether we should export thumbscrews to anybody. We recognized that probably none of the criteria would apply very well, but we probably ought not to be exporting thumbscrews. Would you care to comment further?

Mr. HARR. I always defer to the mother of parliaments on all sovereign matters. I am glad to see that in our statement we did not charge the State Department with having failed to pass on these criteria.

Mr. KOPP. The control in question on export of aircraft to Iraq, Libya, Syria, and the People's Democratic Republic of Yemen is imposed under section 6(i) of the Export Administration Act, the Fenwick amendment.

The question might arise whether these aircraft are, in fact, goods that the export of which would contribute significantly to the military potential of these countries. The reason that civil aircraft come under this control was, as you pointed out, the use by Libya of 727's for military purposes in the fall of 1979 when these planes were used to ferry Libyan troops to Uganda in support of Idi Amin. It was that incident which led to the control on aircraft which are civilian in design, civilian in purpose, and civilian in use.

It is indeed possible to put men in uniform inside a 727 or any passenger aircraft. One could argue that civil aircraft, in fact, do not contribute to the military potential of these countries or their potential to engage in international terrorism, and that is a matter

upon which the judgment of the administration has to be brought to bear. It was brought to bear when the control was devised, with the cooperation of the Congress. It is something that we think properly needs to be taken into account in deciding, given the control, whether applications for export licenses should be approved or not.

EXIMBANK'S ASSISTANCE

Mr. BINGHAM. Let me make one quick comment, and then see if there are further questions.

It does seem to me that a good part of the testimony that we have heard today points to the problem of assistance in financing and, very specifically, the Eximbank. This is in part a budgetary problem. The administration has indicated a strong desire to cut back substantially on Eximbank financing. It is possible—as was referred to before—that the problem could be approached by arriving at some sort of negotiated agreement that would control the kinds of financing that are considered permissible. Absent that, I wonder what the administration's position is going to be on making full use of the tool that we do have, namely, the Eximbank, in competing with the assistance provided by other governments to their exporting companies?

Mr. KOPP. I think this falls a little outside my line of work as an administration witness. We are testifying before Representative Neal's committee today.

Mr. BINGHAM. It is more a comment, and perhaps a rhetorical question. I am commenting on the way the testimony strikes me. Eximbank financing is not within the jurisdiction of this committee. It is, however, something of enormous importance in the field that we have been discussing.

I recognize Mr. Lagomarsino, if he has further questions.

SUPERSONIC AIRCRAFT

Mr. LAGOMARSINO. I am curious about the Concorde. What is the status and future outlook for the Concorde?

Mr. HARR. It has never paid its way; it will be a museum piece when these birds are worn out because they are not building any more in this generation. I think, however, it has proved the point of the true value of the incremental time saving that the supersonic aircraft can provide.

Our airplane, the one that was going to compete with them, was to come in 2 years later, with a third again as much range, twice as much passenger payload capacity and half again as much speed, all of which had an enormous impact on the direct seat-cost per mile and would have been much more economical had it come into existence up until the point that the fuel prices went out of sight. This fuel increase was an unknown fact at that time and would have made a substantial difference. It is one of the principal barriers to there being any great enthusiasm on the part of the manufacturers to go ahead with a second generation or advanced supersonic.

However, there is still an effort going on; there is money being spent; there is Government money and there is industry money of

a couple of companies, and there is real talk of the Europeans coming up with a second generation supersonic jet of their own. Right now, I think everyone basically feels a couple of breakthroughs have to be made, technologically, if fuel prices stay high, before we see another American SST.

JAPANESE AIRCRAFT

Mr. LAGOMARSINO. What experience do the Japanese have in commercial aircraft development?

Mr. PIPER. The Japanese did have a government-formed company to put together YS-11, which is a turboprop aircraft. It was not a commercial success and it was withdrawn from production in 1973. Since then, Japan has studied carefully how they might enter the civil aircraft market. A division in the Ministry of International Trade and Commerce—the aircraft and ordnance division—has worked with major Japanese companies to form a commercial transport development corporation which was set up to contract with Boeing for a sizable share, some 15 percent, of the fuselage of Boeing's new-generation 767 wide-bodied commercial jet transport aircraft.

They have hundreds of engineers in Seattle, learning what Boeing needs to have Japan's components fit into the Boeing aircraft. They are learning from one of the best companies in the world the production/assembly of aircraft. They have a number of joint programs. They have one with Messerschmit-Bölkow-Blohm of Germany for helicopters; they have a program with Rolls Royce, a 50/50 sharing in the development of a new commercial jet engine. They have a number of partnership deals from which they learn a lot.

They also have licensed production from the United States. They have been making F-4's; they are now making F-15's under licensed production. They are making P3-C Lockheed antisubmarine warfare aircraft under licensed production. These are not civil aircraft but they are learning the production techniques and gaining the experience in developing an industry.

Mr. LAGOMARSINO [presiding]. What are they doing with military aircraft?

Mr. PIPER. Those are for the Japanese air defense forces.

Mr. LAGOMARSINO. For their own use?

Mr. PIPER. Yes.

Mr. LAGOMARSINO. They are not selling them?

Mr. PIPER. No. Japan's constitution and law prohibit their sale of military goods or arms.

Mr. LAGOMARSINO. Thank you.

Mrs. Fenwick, do you have any questions?

Mrs. FENWICK. What are they doing with the Rolls Royce engine?

Mr. PIPER. That is a commercial engine. They are doing what is referred to as the cold section, and Rolls Royce is doing the hot section of the engine. It is 50/50 sharing of what is designated as the RJ-500. It is a paper engine at this point; it is not quite certain what the thrust class will be.

Japan is hopeful of escalating the development so that it will be available even next year for orders to be taken for the Boeing 737-

300, should Boeing choose to launch such aircraft. They see it for the next generation for 120- to 150-seat commercial jet aircraft.

Mr. LAGOMARSINO. Thank you.

The meeting is adjourned.

[Whereupon, at 5:05 p.m., the subcommittee adjourned, to reconvene at the call of the Chair.]

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OVERVIEW OF U.S. INTERNATIONAL COMPETITIVENESS

Machine Tools

WEDNESDAY, JUNE 9, 1982

HOUSE OF REPRESENTATIVES,
COMMITTEE ON FOREIGN AFFAIRS,
SUBCOMMITTEE ON INTERNATIONAL
ECONOMIC POLICY AND TRADE,
Washington, D.C.

The subcommittee met at 2 p.m. in room 2172, Rayburn House Office Building, Hon. Jonathan B. Bingham (chairman of the subcommittee) presiding.

Mr. BINGHAM. The Subcommittee on International Economic Policy and Trade will be in order.

We meet today to review the competitive position of the U.S. machine tool industry in international trade, and possible implications for U.S. international economic policy.

This is the second hearing in a series begun earlier in this Congress. At the first hearing we reviewed the position of the aircraft industry. At future hearings we hope to look at the electronics industry, the construction industry, and possibly other industry sectors. At the final hearing in this series, we will invite representatives of the administration to provide an update on U.S. efforts to reduce export disincentives and formally promote U.S. exports, and on current international negotiations affecting our export competitiveness.

The machine tool industry is the foundation of our industrial and defense complex, and we are pleased to hear from three representatives of the National Machine Tool Builders Association: Mr. Jesse Maffuid, international trade director; Mr. Richard Kuba, international marketing director; and Mr. Stan Seibert, international commerce director.

Welcome, gentlemen. Would you like to begin, Mr. Maffuid?

STATEMENT OF JESSE MAFFUID, INTERNATIONAL TRADE DIRECTOR, NATIONAL MACHINE TOOL BUILDERS ASSOCIATION

Mr. MAFFUID. Good afternoon. My name is Jesse Maffuid. I am the international trade director of the National Machine Tool Builders Association [NMTBA], a national trade association comprised of about 400 member companies which account for approximately 90 percent of machine tool production in the United States. Accompanying me today are the other members of NMTBA's inter-

national trade staff, Mr. Richard Kuba and Mr. Stan Seibert, directors of international marketing and international commerce, respectively. Also with us today is Mr. James Mack, public affairs director at NMTBA.

It is reassuring to find this subcommittee, and particularly you, Mr. Chairman, concerned about the competitiveness of the U.S. machine tool industry. We sincerely appreciate your initiative in allowing us this opportunity to present our views, and we are pleased to be of service.

Between my two colleagues and myself, we have conducted export activities for member participation in 33 nations. Included are over 40 promotional international events with the Department of Commerce. It is not unusual for us to be overseas 50 percent of our time in a given year.

DECLINE OF U.S. MACHINE TOOL INDUSTRY COMPETITIVENESS

I'd like to begin my comments by stressing our belief that American industry, including the machine tool industry, collectively has the capability and the expertise to outproduce any competitor in the world marketplace. However, as we meet here today, America's competitive position, including that of our own industry, is faltering worldwide. One of the unmistakable reasons for this decline is the unprecedented influx of machine tool imports into this country during recent years. This situation is all the more alarming when you consider that the American machine tool industry comprises such a basic and strategic segment of the U.S. defense industrial base.

Mr. Chairman, this disturbing import trend has been thoroughly documented in our written submission to the subcommittee. However, the following statistics reflecting the import situation in 1981 are representative of this trend, and bear repeating this afternoon.

In 1981, imports accounted for 36 percent of U.S. machine tool consumption. Of the most technically advanced and defense-sensitive equipment, such as numerically controlled lathes and machining centers, imports comprised more than 50 percent of all U.S. sales. During this period orders for U.S. machine tools fell 37 percent, while imports increased by 14 percent.

It is our view that, because the United States is the largest open machine tool market in the world, our foreign competitors have pulled out the stops and are aiming their export marketing efforts directly at America. The alarming data outlined in our written statement reflects a systematic and determined undertaking by our foreign competitors to penetrate and capture the U.S. market. Even more distressing is the changing character of this foreign market share; it is increasingly comprised of more technologically advanced equipment.

Machine tools provide the basis for production of all military hardware, yet the United States is becoming increasingly dependent on foreign sources for equipment and machinery essential to a viable defense-production industry. During periods of mobilization in a national emergency, this foreign source dependence could seriously undermine our national security. America's involvement in a

war could render our foreign machine tools virtually useless for lack of replacement parts.

In addition to the invasion of our domestic machine tool market, America's share of the export market has seriously eroded in recent years. In this regard, I would like to briefly discuss the administration of foreign policy export controls via the Export Administration Act.

EFFECT OF FOREIGN POLICY CONTROLS

NMTBA believes that the significant reforms brought about during the 1979 reauthorization of the Export Administration Act have contributed greatly to a more efficient and realistic export control policy.

Although as a general proposition our association and industry questions the effectiveness of using trade as a weapon, we recognize that there are perhaps occasions in which it may be appropriate to make international statements of policy to some degree curtailing or restricting U.S. exports. However, we believe that such foreign policy controls should be clearly labeled as such, as indeed they are required to be under the 1979 revisions to the Export Administration Act, with Congress having an opportunity to be consulted prior to the implementation of such restrictions.

Consider the effect of such controls on the South African machine tool market. Controls on exports to South Africa originated in 1963 with the arms embargo imposed through the United Nations. The restrictions were broadened in 1978 by the U.S. Government to include equipment destined for military or police use. The obvious effect of these controls was, and still is, to make it more attractive for South Africa to purchase machine tools from other nations for fear of an eventual U.S. boycott and loss of repair parts availability. Numerical control is relatively new to South Africa and their metalworking companies realize the necessity for uninterrupted access to the builder. Consequently, they chose to rely more heavily on Asian and European sources of supply. In 1977 they consumed \$70 million in machine tools. This grew rapidly to \$290 million in 1981. Our share of the market plummeted to 4 percent during this period and we lost a good customer to our allied competitors.

As a result, the recent temporary relaxation of controls on our exports to South Africa, supported by the administration and opposed by this committee, have done little to increase our export volume to that country because our South African trading partners correctly perceive such attempts as being widely subject to fluctuation and/or reversal. These actions fail to provide sufficient long-range assurances of U.S. trading stability. Such assurances are necessary before our level of exports to South Africa increase to any appreciable degree.

Our purpose today is not to suggest that foreign policy controls are in any way inappropriate generally or specifically with regard to South Africa. We only wish to point out there is a price to be exacted for foreign policy controls, particularly when similar controls are not imposed by our competitors. Sometimes that price is

very high in terms of American jobs and profit that are forgone as a result.

A case in point is the People's Republic of China. Our industry has held 5 IOGA [Industry-Organized, Government-Approved] trade missions to China, starting in 1975. The Chinese have responded by sending buying delegations to the United States to visit our members. In addition, we are conducting an All-American Machine Tool Show in Beijing next spring. All of these efforts are at considerable financial risk, because the Chinese still perceive our industry to be an unreliable trading partner. They purchased only 50 percent of the intended amount during each visit to America because they felt our members could not get the necessary licenses for export. The Chinese want to buy from America. I have made 11 trips to China to help them do it and I can tell you, Mr. Chairman, it's frustrating to see hardworking and capable businessmen do the spade work only to have the just rewards reaped by allied competitors who will not play by commonly agreed rules.

Thank you.

Mr. BINGHAM. Thank you very much, Mr. Maffuid.

STATEMENT OF RICHARD KUBA, INTERNATIONAL MARKETING DIRECTOR, NATIONAL MACHINE TOOL BUILDERS' ASSOCIATION

INCONSISTENCY OF COCOM COMPLIANCE

Mr. KUBA. Good afternoon, Mr. Chairman. My name is Rick Kuba, international marketing director at the National Machine Tool Builders' Association. My current responsibilities at NMTBA and my previous experience as a member of the Numerical Control Technical Advisory Committee has enabled me to become quite familiar with the practical effects of the Coordinating Committee on Multilateral Export Controls [COCOM] regulations on the competitive standing of our industry in the international marketplace.

COCOM was established to insure a degree of uniformity among the major Western trading nations' policies concerning the transfer of militarily critical technology, an objective wholeheartedly endorsed by our membership. Unfortunately, many of our NATO allies have adopted a much more flexible interpretation of these rules than we have. During its consideration of the Export Administration Act amendments of 1979, we provided the subcommittee with documented examples of cases in which U.S. machine tool builders have been denied export licenses for sales of certain controlled technology to Communist countries, only to later discover that a foreign competitor, and member of COCOM, had made the very same sale. Going one step further, a Japanese builder made what would be a prohibited sale for a U.S. manufacturer and even granted a company in the restricted country a license to manufacture the equipment in question.

The People's Republic of China provides another example of COCOM inconsistency. Chinese manufacturers, potential end-users of American machine tools, have visited our members' plants, only to find that export licenses could not be issued for the equipment they wished to purchase. Consequently, our Chinese visitors placed their order elsewhere, with other COCOM members.

Mr. Chairman, restricting the sale of technology which is clearly basic by today's standards and having no military application is not in the best interest of our Nation or our industry. We do, however, strongly urge our Government to vigorously address the issue of other COCOM nations' lack of uniform compliance with legitimate and meaningful COCOM regulations.

NATIONAL SECURITY CONTROLS

In contrast to foreign policy controls, we believe that national security controls are only appropriate when they, in fact, serve their intended purpose of keeping certain commodities out of the hands of potential adversaries. A key element which must be taken into account in the implementation of national security controls is that of foreign availability; in other words, the realistic assessment of what is commonly available and being sold to potential adversaries by other trading nations, too often. Insufficient weight is accorded a showing by American exporters that products which they have been denied the right to export are freely available from other sources. Even more disturbing is the fact that often these other sources are our own Western allies.

Our experience with the Warsaw Pact nations provides a timely illustration of this self-defeating trend. Collectively, these nations constitute the world's largest consumers of metalworking machine tools. The Soviet Union alone is the world's second largest consumer. From 1976 through 1980 they consumed \$13.4 billion worth of machine tools. During that period, the United States supplied \$100.6 million worth, which is approximately eight-tenths of 1 percent, clearly illustrating that our participation in this market is virtually nonexistent.

Many U.S. products still require a validated export license, products which by today's standards are considered conventional and, yes, even when equipped with N/C controls. As a result, the Soviet Union has sourced elsewhere, labeled us as unreliable trading partners, and capitalized on our quotations, pricing, and technical support documentation when dealing with those countries who do supply their needs.

RECOMMENDED CORRECTIVE ACTION

Corrective action is clearly called for, and we offer the following suggestions to aid your subcommittee: Actions offering immediate relief to our industry include more realistic interpretations of COCOM-regulated commodities by the Department of Commerce and other U.S. Government agencies. Perhaps the implementation of a computerized management system would enable the Department of Commerce to store and retrieve data considered pertinent for competent decisionmaking on the part of Department of Commerce licensing officers.

It should be noted that our members and our association have supplied an overwhelming amount of documentation to the Department of Commerce, which has substantiated the availability of foreign-sourced machinery highly competitive to our industry. Frequently our members translated these documents into English at considerable personal cost.

INSUFFICIENT FINANCING BY EXIMBANK

Let me turn now to financing. The Export-Import Bank of the United States is simply not providing sufficient export financing assistance. Millions of dollars in exports and thousands of jobs are being lost to the more aggressive financing arrangements of our foreign competitors. We suggest that Eximbank be provided with a level of lending authority enabling it to be competitive with foreign lending institutions.

In the 2 most recent years for which complete data is available, 1979 and 1980, Eximbank-financed exports have amounted to only 8 percent of total U.S. exports. Eximbank loans made directly to the machine tool industry over the past 2 fiscal years have amounted to just under \$26 million. And there were no direct loans made to U.S. machine tool builders by Eximbank during the first 5 months of fiscal year 1982. The Export-Import Bank is a highly commendable effort by our Government to enhance exports of U.S. products and services. Its lending authority deserves to be increased, not cut back.

Other areas of assistance worth pursuing might be to provide the President with discretionary powers to protect U.S. manufacturers from those offshore firms who illegally copy our products and are subject to Generalized System of Preferences [GSP]. AID programs should favor U.S.-produced goods and services wherever possible.

Mr. Chairman, no one in our industry wishes to be labeled as a supplier of technologically advanced machine tools to our adversaries, machine tools truly unique and not sourced elsewhere. But we do ask to have access to those markets on an equal basis to our competitors.

In conclusion, Mr. Chairman, the future of our industry is at stake, an industry which is dangerously threatened by imports and U.S. Government policies which deny us access to markets presently served by our COCOM partners and allies.

Thank you.

Mr. BINGHAM. Thank you, Mr. Kuba. Mr. Seibert.

STATEMENT OF STAN SEIBERT, INTERNATIONAL COMMERCE DIRECTOR, NATIONAL MACHINE TOOL BUILDERS' ASSOCIATION

Mr. SEIBERT. Good afternoon. I'm Stan Seibert, international commerce director at NMTBA. My territorial responsibilities around the globe includes most of the developing nations of the world. Mr. Maffuid has already alluded to the rising tide of machine tools imports coming into this country. Of particular concern to us is Japan's involvement in this overall import picture.

JAPAN'S ROLE IN MACHINE TOOL MARKET

Japan's efforts to penetrate the U.S. market have been encouraged and stimulated by years of wide-ranging support from the Japanese Government. It is an effort that has paid off; in the United States last year, \$1 out of every \$7 spent on machine tools was spent on units built in Japan. Mr. Chairman, we are not suggesting that import sales in our domestic market are a new phenomenon, but the value of Japan's machine tool shipments to the

United States have increased substantially during the past 5 years, both in terms of actual dollar value and in terms of relative market share, more than quadrupling since 1977.

Statistics detailing Japan's top 10 machine tool markets for the years 1976 and 1981, included in our written statement, also provide clear evidence that the Japanese have targeted the U.S. machine tool market. In 1976, the U.S. market accounted for 22.4 percent of all machine tools exported from Japan. By 1981 almost half of the machine tools exported from Japan were destined for American buyers. This amounted to close to eight times the volume sold to West Germany, the second largest Japanese foreign market in 1981.

While Japan's share of the United States domestic machine tool market more than tripled from 1976 to 1981, when expressed in numbers of units the dollar value of Japanese exports into this country ballooned more than tenfold to over \$688 million. During this same period, our exports to Japan have decreased to \$38 million in 1982, or less than 1½ percent of the \$2.6 billion machine tool market in Japan.

It is important to recognize the types of machines that are being supplied to our domestic manufacturers by our Japanese competitors. Numerically controlled lathes and machining centers continue to constitute the largest proportion of imports. However, imports of grinding and polishing machines, gear-making machines, and metal-forming machines have all more than doubled in the last 4 years. In sum, we are losing an increasingly larger share of our domestic machine tool market to Japanese imports each year. But perhaps even more distressing is the changing character of that market share. It is now comprised of more technologically advanced equipment. In 1981, more than 70 percent of the Japanese metal-cutting machine exports to the United States consisted of equipment with sophisticated numerical controls.

I would like to direct your attention to a recent directive issued by the European Economic Community [EEC] which called upon Japan to provide tangible assurances that from 1982 onwards it will pursue a policy of effective moderation toward the community as a whole in those sectors where an increase in Japanese exports to the community would cause significant problems. Among those sectors targeted were certain machine tools, including numerically controlled lathes and machining centers. If the European community is successful in its attempts to restrict Japanese access to EEC markets under color of reciprocity, the United States will become an even more visible and vulnerable import target than it is now. This is a development that we simply cannot abide.

We have each identified some major problems impacting on the competitiveness of the U.S. machine tool industry. I would like to conclude by discussing several specific proposals which we believe may offer at least a partial solution to these problems, particularly as they affect small businesses.

PROPOSALS TO HELP SOLVE IMPORT PROBLEMS

Export Trading Company [ETC] legislation unanimously passed the Senate more than a year ago. Your subcommittee has already

completed its consideration of this important measure, which will spur creation of large-scale American trading companies that will provide a much-needed export vehicle for small- and medium-sized businesses.¹

On another front, the Business and Accounting and Foreign Trade Simplification Act, which amends the Foreign Corrupt Practices Act [FCPA] of 1977, is an important step in eliminating much of the uncertainty which presently surrounds what is and is not acceptable business procedure overseas. Troublesome and often unnecessary problems have arisen under the FCPA due to lack of clarity in the act and varied interpretations concerning its meaning and application in different countries and cultures throughout the world. These interpretive problems have caused lost export opportunities and unreasonable costs for U.S. businesses operating abroad. While the magnitude of lost U.S. exports cannot be precisely determined, it is estimated that legitimate export opportunities of a significant amount have been passed up by American businesses because of uncertainty over how to interpret the present law. In addition, costly internal antibribery accounting procedures currently required by FCPA are unduly burdensome, particularly to small- and medium-sized companies. The Senate has approved this measure. House passage of the legislation will strengthen the FCPA by making clearer the law's intent and application.

In closing, let me reemphasize our belief that U.S. machine tool builders have the capability and the expertise to meet competitive challenges from overseas. Today U.S. machine tool builders are producing machines that can do many times the work of previous generations of machines with greater speed, accuracy, and economy. With computerization, robotics, and other new automation technology, we have the possibility for quantum leaps in the years ahead. But to realize these gains, and to pass them on to the defense base, American industry must have the opportunity to compete on equal footing. We are certain you agree that the U.S. machine tool industry is too vital to the strength of the U.S. economy and America's national security to let current conditions continue.

Again, we appreciate this opportunity to apprise the subcommittee of the problems facing our industry. We would be happy to respond to your questions.

Mr. BINGHAM. Thank you very much, Mr. Seibert.

[The National Machine Tool Builders' Association's prepared statement follows:]

PREPARED STATEMENT OF NATIONAL MACHINE TOOL BUILDERS' ASSOCIATION

I. INTRODUCTION

Good afternoon, my name is Jesse Maffuid. I am International Trade Director of the National Machine Tool Builders' association (NMTBA), a national trade association comprised of about 400 member companies. NMTBA's membership accounts for approximately 90 percent of United States machine tool production. Accompanying me today are the other members of the NMTBA's International Trade staff: Mr. Richard Kuba and Mr. Stan Seibert, Directors of International Marketing and Inter-

¹ The Subcommittee on International Economic Policy and Trade passed the Export Trading Company Act of 1982 on March 29, 1982, followed by full committee markup on April 29, 1982, and passage by the House on July 27, 1982. The conference report was subsequently agreed to October 1, 1982 and signed into law on October 8, 1982, P.L. 97-290.

national Commerce respectively. Also with us today is Mr. James Mack, Public Affairs Director at NMTBA.

It is reassuring to find this Subcommittee, and particularly you, Mr. Chairman, concerned about the competitive posture of the U.S. machine tool industry. Our comments this afternoon will illustrate that indeed your concern is well-founded. We sincerely appreciate your initiative in allowing us this opportunity to present our views, and we are pleased to be of service.

Before proceeding with my comments, I would like to tell you a little more about NMTBA and the industry it represents. NMTBA represents those in the business of manufacturing the tools of metalworking productivity: machine tools, cutting, grinding and forming machines, electrical and electronic controls, universal measuring machines, and automated production systems, to name a few. Although the total machine tool industry employs approximately 100,000 people with a combined annual output of around five billion dollars, most NMTBA member companies are small businesses with payrolls of 250 or fewer employees.

While relatively small by some corporate standards, the American machine tool industry comprises a very basic and strategic segment of the U.S. defense-industrial base. This is the industry that builds the machines that are the foundation of the United States' industrial strength and military preparedness. Few, if any, goods and services would exist in this country if it were not for machine tools. There would be no aircraft, ships, cars or railroads. There would be no appliances or agricultural machines. In short, life as we know it today would be impossible without modern machine tools.

Given the importance of export activity to the U.S. machine tool industry, we feel it is appropriate to briefly apprise the Subcommittee of the ongoing export promotion efforts undertaken by NMTBA and its member companies.

NMTBA, on behalf of the American machine tool industry, is devoting its own resources to the development and maintenance of international markets everywhere in the world. The Association has three staff directors who spend virtually their full time overseas promoting United States machine tool exports with considerable assistance from the Department of Commerce.

NMTBA develops seminars and workshops to train our members' people on all aspects of international trade. We conduct market research to analyze promising markets for industry development. We have conducted roughly 40 Industry Organized, Government Approved (IOGA) overseas promotional activities to help gain a foothold in these new markets, and approximately eighteen promotional events are planned for 1982 and 1983. We sponsor foreign exhibitions so that our members will have more opportunities to display their products overseas. In addition, we work closely with the Commerce Department on such activities as recruiting exhibitors for export promotion events such as catalog shows, video tape shows and technical seminars. We organize reverse trade missions to bring foreign buyers to our member plants. And we bring large groups of foreign visitors to the International Machine Tool Show in Chicago every two years. In 1980, we attracted over 7,000 foreign visitors—the record for any U.S. exhibition. The Commerce Department has worked closely with us in the development and implementation of these programs, as have the commercial officers in our embassies and trade centers around the world.

Just two months ago, we concluded the most extensive machine tool show ever held in Mexico. (In 1981, Mexico surpassed Canada to become the U.S. machine tool industry's largest export market.) The show, held in conjunction with the Commerce Department and the U.S. Trade Center staff in Mexico City, was a resounding success. Despite the recent 40 percent devaluation of the peso and an unseasonably heavy rain, the show registered more than 4,000 potential end-users of American machine tools. Nearly \$3 million in equipment was purchased directly off the show floor, with substantial additional sales anticipated as a result of show exposure.

American industry, including the machine tool industry, collectively has the brains, the know-how, and the ingenuity to outproduce any competitor in the world marketplace. However, as we meet here today, America's competitive position is faltering worldwide. The reasons for this decline are varied and complex. Chief among them are: aging manufacturing plants and equipment, inflation and interest rates that are paralyzing the prospects for modernization and expansion, an unprecedented influx of machine tool imports into this country, and certain legal and statutory requirements that seriously impair the ability of U.S. businesses to successfully develop and compete in international markets.

Mr. Chairman, we know you share our belief that a thriving American machine tool industry is essential to America's well-being. We are here this afternoon to examine ways in which the competitive vigor and technological superiority of the U.S. machine tool industry may be preserved and indeed, fortified.

II. LOSS OF U.S. MACHINE TOOL INDUSTRY'S COMPETITIVE EDGE

While the domestic U.S. machine tool market has been oscillating with very little real growth since the middle 1960's, the world market has grown substantially. Unfortunately, most of this worldwide expansion has been absorbed by our foreign competitors, eroding our market share.

In the middle 1960's, the American machine tool industry supplied approximately one-third of the total global market. In other words, one out of every three machine tools consumed in the world was produced by an American machine tool builder. However, by the end of 1981, that portion had fallen to only 1 in 5.

This dramatic decline is the result of two factors. First, our domestic market has been invaded by foreign competitors on a scale never before imagined. Since 1964, America's imports of foreign machine tools have grown six-fold from 4½ percent of total consumption 18 years ago to almost 30 percent in 1981, based on value. As a share of units, that is, machines actually installed, in 1981 imports accounted for 36 percent of U.S. consumption; of the most technically advanced and defense sensitive equipment, (numerically controlled lathes and machining centers) imports comprised more than 50 percent of all U.S. sales.¹ During this period, orders for U.S. machine tools fell 37 percent, while imports increased by 14 percent.

As a result of the rising tide of imports, the machine tool industry's balance of trade was negative for the first time in history in 1978. In 1979 it was in deficit by \$400 million; in 1980 by \$513 million. The industry suffered its fourth straight year of negative trade balance in 1981 with a deficit of \$455 million. (See Exhibit number 1).

It is obvious, therefore, that because the United States is the largest open machine tool market in the world, our foreign competitors have pulled out the stops and are aiming their export marketing efforts directly at America. The alarming data outlined above reflects a systematic and determined undertaking by our foreign competitors to penetrate and capture the U.S. market. In the case of the Japanese, for example, this effort has been encouraged and stimulated by years of wide-ranging support from the Japanese government. It is an effort that has paid off: in the U.S. last year, one out of every seven dollars spent on machine tools was spent on machine tools built in Japan.

We are not suggesting that import sales in our domestic market are a new phenomenon. As Exhibit number 2 shows, the first wave of imports came during the mid 1960's, when import market share increased from about 4.5 percent to 12 percent. However, Exhibit number 3 clearly illustrates the dramatic jump in the value of foreign machines sold in the United States between 1977 and 1980. The value of Japan's machine tool shipments to the United States increased substantially during this period (both in terms of actual dollar value and in terms of relative market-share), more than quadrupling since 1977.

Statistics detailing Japan's top ten machine tool markets for the years 1976 and 1981 also provide clear cut illustration that the Japanese have targeted the United States machine tool market. (See Exhibit number 4.)

In 1976, the United States market accounted for 22.4 percent of all machine tools exported from Japan. Even at this point American purchases comprised the single largest export market for Japanese machine tool builders, with the Republic of Korea second at 19.1 percent. By 1981, almost half of the machine tools exported from Japan were destined for American buyers. This amounted to close to eight times the volume sold to West Germany, the second largest Japanese foreign market in 1981.

While Japan's share of the United States domestic machine tool market more than tripled from 1976 to 1981, when expressed in numbers of units, the dollar value of Japanese exports into this country ballooned more than ten fold, from \$67 million to over \$688 million.

It is important to recognize the types of machines that are being supplied to our domestic manufacturers by our Japanese competitors. Numerically controlled (N/C) lathes and machining centers continue to constitute the largest proportion of imports. However, imports of grinding and polishing machines, gear-making machines and metalforming machines have all more than doubled in the last four years. But perhaps most significantly, imports of high technology machining centers have increased dramatically over the past several years to where they totaled more than \$183.9 million in 1981.

¹ Imports accounted for two-thirds of the NC lathes, half of the NC machining centers and forging machines and three-quarters of the boring machines purchased in the U.S. in 1981.

In sum, we are losing an increasingly larger share of our domestic machine tool market to Japanese imports each year. But perhaps even more distressing is the changing character of that market share. It is increasingly comprised of more technologically advanced equipment. (See Exhibit number 5.) In 1981 almost 71.4 percent of the Japanese metal cutting machine exports to the U.S. consisted of equipment with sophisticated numerical controls.

Paradoxically, these are essentially the same type of machines which we are prevented from selling in Eastern Europe, because of national security export controls. In other words, export controls restrict U.S. machine tool capacity, because of national defense concerns, while at the same time the industry's capacity to produce the same type of equipment is being restricted by imports. The national security implications are obvious.

This is certainly a development to which we can ill-afford to resign ourselves, particularly when there is every indication that this startling trend will continue and, most likely escalate.

A recent directive issued by the European Economic Community (EEC) called upon Japan to provide "tangible assurances" that from 1982 onwards, it will pursue a policy of "effective moderation" towards the community as a whole in those sections where an increase in Japanese exports to the community would cause "significant problems."² Among those sectors targeted were certain machine tools, including numerically controlled lathes and machining centers. If the European community is successful in its attempts to restrict Japanese access to EEC markets, the U.S. will become a more visible and vulnerable import target than it is now.

IMPORTANCE OF INDUSTRY TO NATIONAL SECURITY

In an effort to focus Congressional and private sector attention on the severity of the import situation and its very alarming implications for America's national security, NMTBA recently placed a full-page advertisement in The Washington Post. (See Exhibit #6.) The message, loud and clear: it is wrong to make American weapons with foreign machine tools. It is wrong because it jeopardizes our national security by making the U.S. strategically dependent on overseas industry, it puts Americans out of work, takes billions out of the American economy, decreases the tax base, increases the trade deficit, and helps to finance and strengthen foreign industry.

The advertisement reflects NMTBA's growing concern about the deterioration of the defense industrial base and the serious effects this could have on defense industrial production.

Congressional concern about the serious decline in the nation's industrial capability became apparent in the 96th Congress, when the House Armed Services Committee created a special panel on the Defense Industrial Base. The findings of this special panel were released in a report dated December 31, 1980.³ In his letter transmitting the report to the full Committee, Chairman Richard Ichord said:

"The panel finds that there has been a serious decline in the Nation's defense industrial capability that places our national security in jeopardy. An alarming erosion of crucial industrial elements, *coupled with a mushrooming dependence on foreign sources for critical materials, is endangering our defense posture at its very foundation.*"⁴ (Emphasis added)

The situation outlined by Chairman Ichord eighteen months ago has only become more exaggerated. Machine tools provide the basis for production of all military hardware, yet the U.S. is becoming increasingly dependent on foreign sources for equipment and machinery essential to a viable defense production industry. During periods of mobilization in a national emergency, this foreign source dependence could seriously undermine our national security. America's involvement in a war could render our foreign machine tools virtually useless, for lack of replacement parts.⁵

² U.S. Department of Commerce, Incoming Telegram No. 84315, April 12, 1982.

³ U.S. Congress, House of Representatives, "The Ailing Defense Industrial Base: Unready for Crisis," Report of the Defense Panel of the Committee on Armed Services, 96th Cong., 2nd sess., 1980.

⁴ *Id.*, at 1.

⁵ It is also significant that while American industry has the highest percentage of old machine tools in the free world today, Japan has the lowest. The average age of government-owned machine tools is approximately 25 years. The Defense Department has approximately 97,000 such tools with an acquisition value, 25 years ago, of approximately \$2.5 billion. Of this total inventory, only 2.4 percent consists of modern numerically controlled (NC) machines. The majority of the Defense-owned plants are 35 to 40 years old, yet we continue to rely on this dated and inefficient equipment to produce and maintain our modern sophisticated defense systems.

Many in Congress and the Administration have acknowledged this disturbing situation. Such acknowledgment is obviously a crucial prerequisite to the enactment of any meaningful solution to America's increasing dependence on foreign sources of machine tools.

House Ways and Means Committee Chairman Dan Rostenkowski, Senate Finance International Trade Subcommittee Chairman John Danforth, and Senate Banking International Finance Subcommittee Chairman John Heinz have each recently written to President Reagan and others in the Administration to urge that action be taken to prevent the nation's Defense Industrial Base from being impaired by excessive machine tool imports. (See Exhibits #7, #8, #9.)

In his letter to the President, Senator Heinz made this telling observation:

"Clearly, this nation is losing its market leadership in this core industry, one important not only to the revitalization of our industrial plant but key to maintenance of the superiority of our defense industries as well. We simply cannot afford to become overly dependent on foreign sources for these vital products . . . the United States must remain at the cutting edge of technology in order to offset the numerical edge which our potential adversaries possess."⁶

NMTBA has recently decided to initiate action under authority of Section 232 of the Trade Expansion Act of 1962 to seek import relief on behalf of the domestic machine tool industry. Under Section 232 of the Act, the President may protect domestic industries for import competition that threatens to impair national security.

In a Section 232 proceeding, the Department of Commerce determines whether a threat to national security exists. If so, Commerce makes a recommendation to the President, who has broad discretion to adopt whatever remedy he believes appropriate.

The statute gives the President broad discretion following receipt of the Secretary's report and contains no time limitations for his decision or for relief. In making his determination, the President considers the same factors on which the Department of Commerce based its report. If the President concludes that the imports do not threaten national security, he will decline to impose relief. If he agrees with Commerce that a threat does exist, he is authorized to "take such action, and for such time, as he deems necessary to adjust the imports of such article and its derivatives so that such imports will not threaten to impair the national security, . . ."⁷

INTERNATIONAL TRADE COMMISSION'S STUDY OF U.S. METALWORKING MACHINE TOOL INDUSTRY

In February of this year, the International Trade Commission (ITC), on its own initiative, instituted an investigation of the U.S. metalworking machine tool industry.⁸ The study was to assess the impact of the growing competition from imports on the U.S. machine tool industry and to explore the related development of further competition in the industry's overseas markets. As part of the investigation, the ITC also intended to examine the steps that have been taken and may be taken to counteract these developments. It appears that one impetus for the investigation was the concern of the Defense Department about the effects of machine tool imports on the nation's industrial base.⁹

Unfortunately, the ITC terminated the investigation in April, citing "changes in workload and staffing limitations." (See Exhibit #10.) We strongly urge that the ITC investigation be reinstated as soon as possible. An investigation of this nature would offer crucial documentation and provide a sound, credible, and independent assessment of the domestic machine tool industry. As such, this investigation could play a vital role in establishing the basis for appropriate levels of competitive assistance. NMTBA pledges its complete cooperation in the event that the ITC investigation of the machine tool industry is reinstated.

⁶ Letter to President Reagan, from John Heinz, United States Senator, Washington, D.C., February 10, 1982.

⁷ 19 U.S.C. § 1862(b). The only limitation on this power is a provision that permits Congressional disapproval of a Presidential action regarding imports of petroleum or petroleum products. 19 U.S.C. § 1862(e).

⁸ Investigation No. 332-138, February 5, 1982, under Section 332(b) of the Tariff Act of 1930 (19 U.S.C. 1332(b)).

⁹ Panel Probes Rising Tool Imports," *American Metal Market*, March 8, 1982, at 4.

DISINCENTIVES FOR MANUFACTURERS IN MARKET

In addition to the invasion of our domestic machine tool market by foreign competitors, America's share of the export market has seriously eroded in recent years. When we look at the dollar value of our exports, the results of our efforts look encouraging. But if we look at American exports as a percentage of all of the machine tool exports in the world, the results are indeed very discouraging. We have been losing export market share at an alarming rate. Our share of the world's machine tool exports fell from 21 percent in 1964 to just 10 percent last year, placing us well behind West Germany and Japan as a machine tool exporting nation.

With our large domestic market to produce for, many American businessmen have shied away from what they often perceive to be the complex world of international trade. While countries like Canada export 27 percent of their gross national product, Germany 36 percent, and the United Kingdom 22 percent, the U.S. consumes all but 18 percent of domestic production. Recent statistics indicate that only 4 percent of this country's 350,000 manufacturers ship their goods abroad and, of those, a mere 200 industrial giants account for about 80 percent of all U.S. exports. Since 1960, the U.S. share of manufactured exports has slid from 22.8 percent to 16.4 percent of the world total.

The primary causes for this decline include the following: lack of sufficient capital, lack of adequate financing, uneven application of export controls, inability and/or unwillingness to deal with the risks inherent in foreign trade and the absence of a middleman to provide essential services.

ADEQUATE FINANCING

The Export-Import Bank of the United States (Eximbank) is simply not providing sufficient export financing assistance. Millions of dollars in exports and thousands of jobs are being lost to the more aggressive financing arrangements of our foreign competitors.

In the two most recent years for which complete data is available (1979 and 1980), Eximbank-financed exports have amounted to only 8 percent of total U.S. exports. Eximbank loans made directly to the machine tool industry over the past two fiscal years have amounted to just under \$26 million. And there were no direct loans made to U.S. machine tool builders by Eximbank during the first five months of fiscal year 1982.

A recent example of Eximbank's non-competitiveness involves two machine tool procurement projects totaling \$23 million that originated from Mexico last year. A number of our members interested in the projects contributed considerable time, effort and expense applying American technology to Mexican metalworking requirements, only to have their Eximbank loan applications denied. Eximbank reportedly declined to fund the projects because Mexican production of the automotive parts involved would adversely impact on labor forces in the United States. However, the fact remains that those parts will be produced and shipped into this country, regardless of Eximbank's failure to endorse the projects. The difference is that the employment and capital generated by these projects will go to bidders outside the United States. By failing to fund these projects, has Eximbank really furthered the interests of our industries here at home?

As we meet here today, the very future of Eximbank and its ability to promote U.S. exports is seriously threatened. Even if the proposed cuts in Eximbank's lending authority (cuts which would effectively shut down the Bank's role as a major player in the export process) are not enacted, the projected needs of Eximbank are almost certain to remain unmet. The Eximbank is a highly commendable effort by the United States government to offer targeted assistance to further U.S. overseas trade. Its lending authority deserves to be increased, not cut back.

IMPACT OF HIGH INTEREST RATES ON U.S. COMPETITIVENESS

One of the most visible and dramatic effects of the rise of in U.S. rates has been the massive inflows of foreign money to the American capital markets to reap the profits available through the high level of short term interest rates—rates which are considerably higher than those offered in their home countries. This selling of foreign currencies to buy dollars created the spectacular surge in the value of the dollar vis-a-vis the currencies of all the other major industrial nations of the world. This turnaround in the value of the dollar was unexpected and thought by many foreign exchange experts to be unsustainable. However, the major beneficiaries of the high interest rates in U.S. financial markets are American tourists visiting for-

eign countries and American importers of goods that have, in dollar terms, declined dramatically in price over the past year.

For American exporters, the rising value of the dollar is a mixed blessing. A more valuable dollar has served to make exporting less costly since all costs not denominated in dollars are now lower than they were a few months ago.

That is the positive side of the ledger. On the negative side is the fact that the foreign currency price of U.S. produced goods is now much higher than it was before the dollar's rise. This has made U.S. goods less competitive in terms of price than they have been in some time and puts pressure on an exporting firm's profit margin because to secure foreign sales prices must be trimmed to competitive levels, a process which may entail substantial discounts.

In addition, the question of the impact of high interest rates on the ability of U.S. firms to finance export sales must also be examined. In the past, if a foreign purchaser of a piece of U.S. equipment sought financing, the transaction typically would be arranged through U.S. banks at obtainable market rates of interest. Currently, with America's interest rates as high as they are, few foreign customers request U.S.-arranged financing. Instead, being aware of the high rates prevailing in the U.S., potential foreign customers look to other sources of financing. Because the terms and rates they can obtain overseas are more favorable than those we can offer, our members lose the business to their foreign competitors. More favorable foreign financing arrangements may also explain some of the foreign penetration of U.S. markets.

III. RESTORATION OF U.S. COMPETITIVENESS

Having identified the major problems impacting on the competitiveness of the U.S. machine tool industry, we now turn to several specific proposals which we believe may offer at least a partial solution to these problems.

EXPORT TRADING COMPANY LEGISLATION

Our decline in export market share is further aggravated by U.S. statutes imposing a number of artificial barriers that significantly restrict export opportunities. Among the most prevalent are the antitrust laws restricting joint export ventures by American companies and the banking laws that limit bank participation in export ventures. The absence of similar restrictions on foreign businesses have fostered a situation in which small, underfinanced American companies have neither the capital nor the opportunity to compete with larger, well connected overseas trading companies.¹⁰

Export Trading Company (ETC) legislation unanimously passed the Senate more than a year ago, and we commend that body for developing and expeditiously passing legislation which by its design will spur creation of large scale American trading companies that would provide a much needed export vehicle for small and medium-sized business.

Your Committee has already completed its consideration of this important measure. Similar legislation has been pending before the House Judiciary and Banking Committees for some time. We are pleased to report that after months of delay, both committees have resumed active consideration of the legislation, and are scheduled to complete their respective deliberations in the near future. Assuming that the current momentum continues, ETC legislation could reach the House floor for a vote by early summer. We applaud the initiative of those in the House who have restored the momentum to a process that has been stalled far too long over a problem far too serious.

Of course, one of the essential elements of this legislation is the clarification of the parameters of U.S. antitrust law with regard to export trade activities. It is our firm belief that the increased certainty of application of the law which would be fostered by such clarification would have a significantly beneficial impact on encouraging numerous U.S. firms, which under current circumstances are discouraged by the irresoluteness of existing antitrust law, to participate in joint exporting ventures.

And as a vital provision in bringing about such increased certainty, we have consistently urged that the primary responsibility for administering the export antitrust certification procedure be placed in the Department of Commerce, in consultation with both the Justice Department and the FTC. We believe that this arrange-

¹⁰ For a balanced and thorough analysis of this issue, we refer the Subcommittee to a recent article by Barry Lutzky, "The Proposed Export Trading Company Act of 1980: Bank Ownership Provisions," *Journal of International Law and Economics*, 1981.

ment will enable many U.S. businesses to overcome their natural reluctance to utilizing the export certification procedure for fear that it will only serve to make them a target for Justice Department inquiries concerning their activities that may "spill over" into the domestic market.¹¹

Another very significant aspect of the ETC legislation that NMTBA strongly supports is the expansion of current Webb-Pomerene associations' ability to compete in world markets by allowing the joint exporting of services as well as goods.

As concerns the bank participation in ETC's, NMTBA believes that banks can bring to ETC's not only financial resources, but almost all of the supporting facilities and services which U.S. exporters now most lack by contrast with their foreign competitors. They will make it possible for American companies to combine their resources in a variety of ways and configurations in the interest of more competitive overseas marketing of American products and services. More importantly, banks can encourage and help exporters develop a long term view of, and presence in, export markets. Moreover, bank affiliated trading companies would have special effect on encouraging more medium and small exporters who are now discouraged by the strangeness of remote foreign markets, exchange risks, and by the complexity and expense of documentation.

Although NMTBA supports the general principle of separation of banking and commerce, we believe there is good, sufficient, and indeed, compelling reason to make an exception on a controlled basis for limited and conditional bank ownership of export trading companies in order to strengthen U.S. capacity to meet non-traditional international trade competition. Moreover, we further believe that as drafted, the Senate-passed ETC bill contains prohibitions, restrictions, limitations, conditions and requirements more than ample to meet each of the objections raised concerning bank ownership of export trading companies.

In our view, any legislation purporting to encourage U.S. exports through the facility of export trading companies, which does not permit bank participation and (in some cases) the right of bank control is only a half step. Adequate financing is one of the most critical elements of export promotion. To continue to prohibit bank participation in export trading companies is to continue a halfway policy of half steps leading to halfway results.¹²

BUSINESS ACCOUNTING AND FOREIGN TRADE SIMPLIFICATION ACT

Once again we commend the Senate for its action in passing the Business Accounting and Foreign Trade Simplification Act (S. 708). This measure, which amends the Foreign Corrupt Practices Act (FCPA) of 1977, is an important step in eliminating much of the uncertainty which presently surrounds what is and is not acceptable business procedure overseas.

Troublesome and often unnecessary problems have arisen under the FCPA due to lack of clarity in the Act and varied interpretations concerning its meaning and application in different countries and cultures throughout the world. These interpretive problems have caused lost export opportunities and unreasonable costs for U.S. business operating abroad. While the magnitude of lost U.S. exports cannot be precisely determined, it is estimated that legitimate export opportunities of a significant amount have been passed up by American businesses because of uncertainty over how to interpret the present law.

In addition, costly internal anti-bribery accounting procedures currently required by FCPA are unduly burdensome, particularly to small and medium-sized companies. House passage of S. 708 will strengthen the FCPA by making clearer the law's intent and application. Further, these amendments are proof to our foreign trading partners that the United States stands firm in its resolve to prosecute Americans for extra-territorial bribery by means of a clear and equitable statute.

The legislation has been before the House Commerce Subcommittee on Finance since last year. We strongly urge Subcommittee Chairman Tim Wirth to act expeditiously in taking this much needed step to help make American businesses more competitive in the world market.

¹¹ U.S. Congress, House, Committee on the Judiciary, Statement by National Machine Tool Builders' Association, May 7, 1981, before the Subcommittee on Monopolies and Commercial Law, Committee on the Judiciary, House of Representatives, during hearings on H.R. 1648 (Title II) and related legislation, 97th Cong., 1st Sess., 1981.

¹² U.S. Congress, House, Committee on Banking, Housing and Urban Affairs, Statement of Wayne R. Moore, President and Chief Executive Officer of the Moore Special Tool Company, Inc., April 22, 1982, before the Subcommittee on Financial Institutions, Supervision, Regulation and Insurance, during hearings on H.R. 6016, 97th Cong., 2nd Sess., 1982.

REVISION OF TAX LAWS

We applaud Congressional initiative in reforming this area of the law. These reforms, enacted as part of last summer's Economic Recovery Tax Act, will make it much more feasible for U.S. companies to employ U.S. citizens in foreign posts. We are certain that this practice will enhance the competitiveness of U.S. industries abroad, because inter alia U.S. citizens are more likely to turn to U.S. sources for equipping overseas construction projects.

Some have proposed that Congress change the eligibility rules for the application of the 10 percent investment tax credit (ITC) so that it would not apply to purchases of foreign machine tools (SIC codes 3541 and 3542). Such action would not only have considerable revenue-raising impact, but would also reflect important national security considerations.

In 1981, \$1.429 billion worth of machine tools were imported into the United States. \$657 million came from Japan. Denial of the 10 percent ITC to these imported machine tools would have gained \$143 million for the U.S. Treasury.

Because of the current recession, it is likely that total machine tool sales—and thus imports—will be substantially reduced from 1981 levels. However, even if (as is likely) 1982 machine tool sales are only one half of what they were in 1981, the revenue gain represented by the denial of 10 percent ITC for machine tools would be substantial—somewhere in the neighborhood of \$70 million.

We have documented that the U.S. is well on its way to becoming foreign-source dependent for machine tools—a prospect which would seriously impair America's ability to respond in the event of a national emergency. Because of the very genuine national security implications involved in this proposal, it does not appear to be in violation of the General Agreements on Tariff and Trade (GATT).

International trade law has always recognized the ability of any nation to take steps that are necessary to protect its national security. National security is specifically cited by the Reagan Administration as the one basis upon which rigid advocacy of free trade is to be abrogated. For these reasons, we urge Congress to carefully consider this proposal when it enacts tax or "revenue enhancement" measures later this year.

Any proposal to raise revenues will arguably cause "pain" to some taxpayers. Denial of the 10 percent ITC to imported machine tools, while causing "pain" to those who install them in their plants, does have the advantage of providing support for our beleaguered industry, which is seriously threatened by imports. Perhaps most important, it will help protect the American industrial base and its ability to respond in the event of a national emergency.

EXPORT ADMINISTRATION LAWS AND REGULATIONS AND COCOM

To this point we have discussed the various methods by which the U.S. Government may assist American exporters in being more competitive in international commerce. Next we must consider what our policy should be concerning the parameters of permissible export trade. Specifically, we refer to the administration of domestic export controls via the Export Administration Act (E.A.A.), and application of the Coordinating Committee (COCOM) regulations by our own government and those of our western trading partners.

NMTBA believes that the significant reforms brought about during the 1979 reauthorization of the E.A.A. have contributed greatly to a more efficient and realistic export control policy. Although as a general proposition our association and industry questions the effectiveness of using trade as a "weapon," we recognize that there are perhaps occasions in which it may be appropriate to make international statements of policy by, to some degree, curtailing or restricting U.S. exports. However, we believe that such "foreign policy" controls should be clearly labeled as such, (as indeed they are required to be under the 1979 revisions to the E.A.A.) with Congress having an opportunity to be consulted prior to the implementation of such restrictions.

Consider the effect of such controls on the South African machine tool market. Controls on exports to South Africa originated in 1963 with the arms embargo imposed through the United Nations. The restrictions were broadened in 1978 by the U.S. government to include equipment destined for military or police use. The obvious effect of these controls was (and is) to make it more attractive for South Africa to purchase machine tools from other nations, for fear of an eventual U.S. boycott and loss of spare parts availability. Numerical control is relatively new to South Africa and their metalworking companies realize the necessity for uninterrupted access to the builder. Consequently, they chose to rely more heavily on Asian and European sources of supply.

The statistics provide a clear-cut illustration of increasing South African dependence on sources other than the United States. South Africa consumed \$70 million in machine tools in 1977, 85 percent of which was imported. Our market share was then 6 percent, down from 18 percent in 1973-74. The South African market has since grown to \$260 million in 1980 and \$290 million in 1981, with a corresponding import share of 90 percent. During this time, U.S. exports dropped to a mere 4 percent. Our reputation as an unreliable trading partner appears to be firmly entrenched in South Africa.

As a result, recent relaxation of controls on our exports to South Africa, supported by the Administration and opposed by this Committee, have done little to increase our export volume to that country. Because our South African trading partners correctly perceive such attempts as being widely subject to fluctuation and/or reversal, these actions fail to provide sufficient long-range assurances of U.S. trading stability. Such assurances are necessary before our level of exports to South Africa increases to any appreciable degree.

Our purpose today is not to suggest that foreign policy controls are in any way inappropriate—generally or specifically with regard to South Africa. We only wish to point out that there is a price to be exacted for foreign policy controls, particularly when similar controls are not imposed by our competitors. Sometimes that price is very high in terms of American jobs and profits that are foregone as a result.

In contrast to foreign policy controls, we believe that "national security" controls are only appropriate when they in fact serve their intended purpose of keeping certain commodities out of the hands of certain non-market nations. A key element which must be taken into account in the implementation of national security controls is that of foreign availability—in other words, the realistic assessment of what is commonly available and being sold to potential adversaries by other trading nations. Too often, insufficient weight is accorded a showing by American exporters that products which they have been denied the right to export are freely available from other sources. Even more disturbing is the fact that often these other sources are our western allies. This penchant for "shooting ourselves in the foot" must stop.

COCOM was established to ensure a degree of uniformity among the major western trading nations' policies concerning the transfer of militarily critical technology, an objective wholeheartedly endorsed by our membership. Unfortunately, many of our own NATO allies have adopted a much more flexible interpretation of these rules than we have.

During its consideration of the Export Administration Act Amendments of 1979, we provided the Subcommittee with documented examples of cases in which U.S. machine tool builders have been denied export licenses for sales of certain controlled technology to Communist countries, only to later discover that a foreign competitor (and member of COCOM) had made the very same sale. Going one step further, a Japanese builder made what would be a prohibited sale for a U.S. manufacturer and even granted a company in the restricted country a license to manufacture the equipment in question.

The People's Republic of China provides another example of COCOM inconsistency. Chinese manufacturers (potential end-users of American machine tools) have visited our members' plants, only to find that export licenses could not be issued for the equipment they wished to purchase. Consequently, our Chinese visitors placed their orders elsewhere—with other COCOM members.

Although we do not advocate restricting the sale of technology which is clearly antiquated and/or has no military application, we do strongly urge our government to vigorously address the issue of other COCOM nations' lack of uniform compliance with legitimate and meaningful COCOM regulations.

IMPORTANCE OF FEDERAL AGENCIES TO COMPETITIVENESS

International trade is a vital element in the overall economic well-being of the United States. For this reason, unfair trade practices which disadvantage U.S. businesses cannot be tolerated. In this regard, we commend the efforts of U.S. Trade Representative Ambassador William Brock for his efforts in attempting to negotiate reduction in foreign government export subsidies. The International Arrangement on Guidelines for Officially Supported Export Credits, the Mexico-U.S. Joint Commission on Commerce and Trade, and the U.S.-China Joint Commission on Commerce and Trade, to name but a few, are major undertakings designed to achieve the resolution of this troubling international economic problem.

Obviously, it is much easier to negotiate from a position of strength than from one of weakness. Therefore, we strongly urge this Administration to continue its efforts to both promote and assist U.S. companies engaged in international commerce.

Only in this way will U.S. business remain a viable international competitor while we await the hoped for reductions in foreign governments' involvement in the market place.

In this regard, we commend the efforts of Secretary Baldrige and others working with him at the Department of Commerce. Initiatives such as the newly expanded Executive Council of the Trade Facilitation Committee, the Foreign Commercial Service, and Export Trading Company legislation are but several examples of the Department's aggressive export philosophy.

Another positive export development certainly worth noting is the machine tool show that NMTBA is sponsoring in the People's Republic of China next April. The show, featuring exclusively American machine tools, was scheduled to coincide with the major industrial restructuring currently underway in China.

Also of particular relevance to the machine tool industry is Secretary Baldrige's concern over the international trade practices of our Japanese competitors. The machine tool industry faces just as serious an import challenge as does the automobile industry. And the similarity continues to the extent that much of this competition comes from Japan. Although it would be unjust and inaccurate to say that all Japanese imports are unfairly subsidized, there are, nevertheless, a number of cases in which we believe some Japanese builders and their government have engaged in predatory trade practices.

NMTBA obviously recognizes the need for reductions in the overall federal budget as a key element in economic recovery. However, we also recognize, and have so stated, that international trade is a vital element in this nation's overall economic posture. Suggestions that the Commerce Department's export promotion activities be curtailed and that the foreign commercial service be disbanded are, in our judgment, irresponsible.

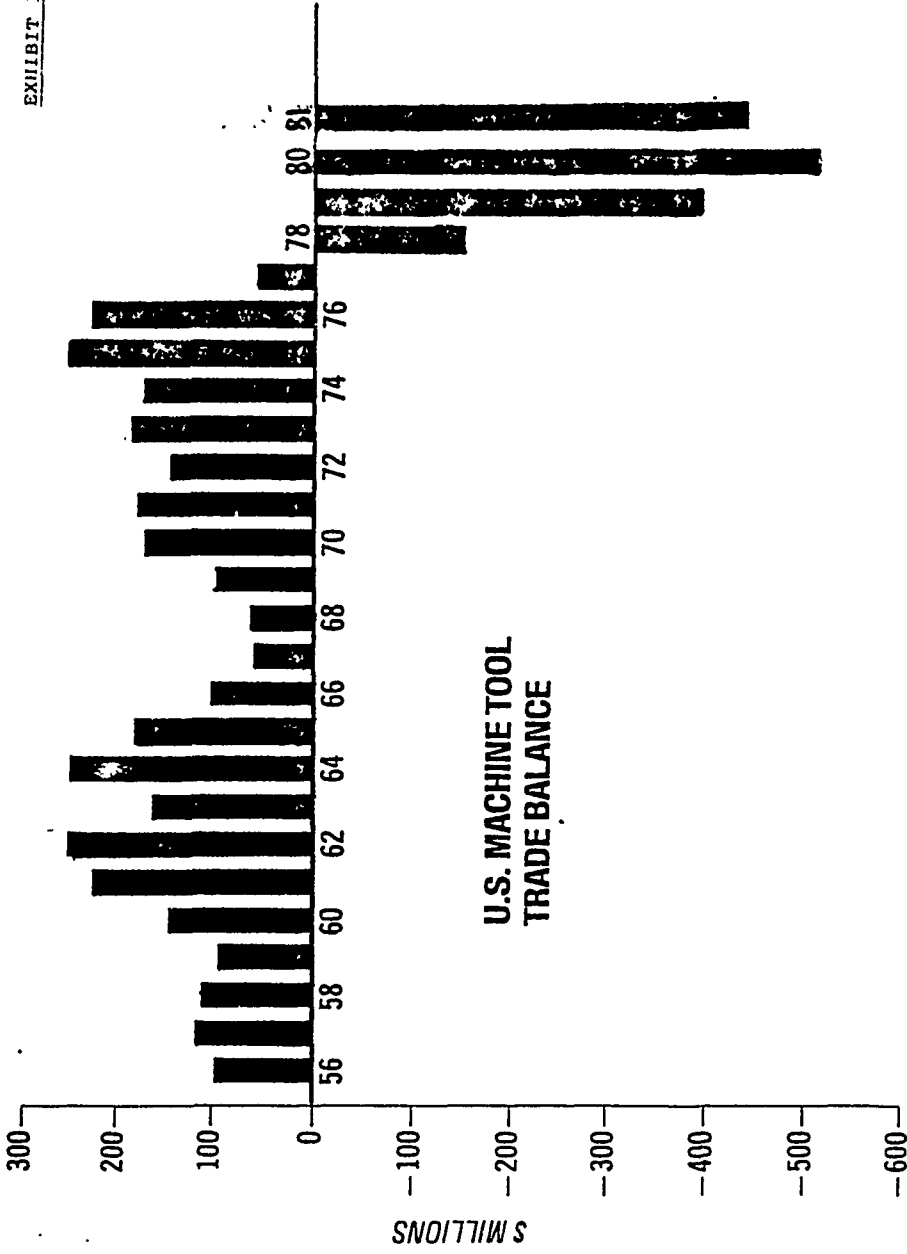
We, therefore, strongly urge Congress to continue to finance the international trade promotion and assistance activities of the Federal Government at levels which will enable them to effectively carry out their important missions. To do otherwise will further imperil U.S. export competitiveness, contribute to loss of business, and lead to more unemployment.

CONCLUSION

Unquestionably, the competitiveness of the U.S. machine tool industry has declined in recent years. However, we want to stress our belief that this decline is not necessarily inevitable, nor is it irreversible, if actions are taken now to prevent it. We have identified a variety of alternatives offering varying degrees of competitive assistance to our industry. We sincerely urge you to consider them carefully, and to act accordingly.

U.S. machine tool builders have the capability and the expertise to meet competitive challenges from overseas. Today, U.S. machine tool builders are producing machines that can do many times the work of previous generations of machines—with greater speed, accuracy and economy. With computerization, robotics and other new automation technology, we have the possibility for quantum leaps in the years ahead. But to realize these gains, and to pass them on to the defense base, American industry must have the opportunity to compete on equal footing. We are certain you agree that the U.S. machine tool industry is too vital to the strength of the U.S. economy and America's national security to let current conditions continue.

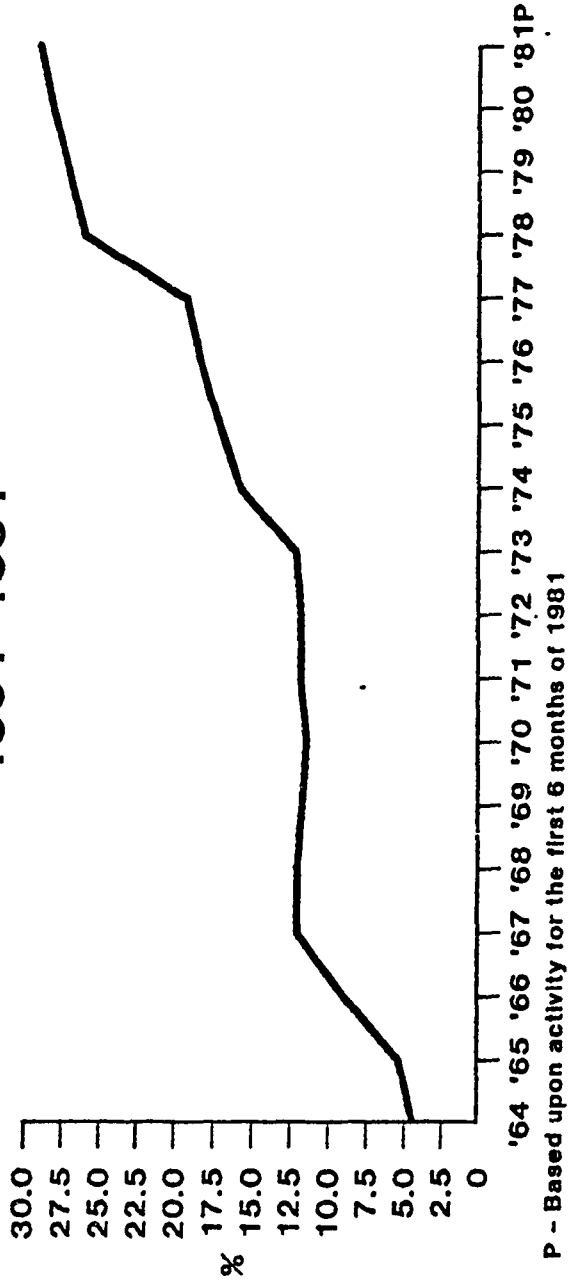
Again, we appreciate this opportunity to apprise the Subcommittee of the problems facing our industry. We would be happy to respond to your questions.



SOURCES NMTBA
U S CENSUS BUREAU

Prepared by NATIONAL MACHINE TOOL BUILDERS ASSOCIATION 2/81

Imports' Share of U.S.A. Market (Machine Tool Imports* % of Total U.S.A. Consumption) 1964-1981

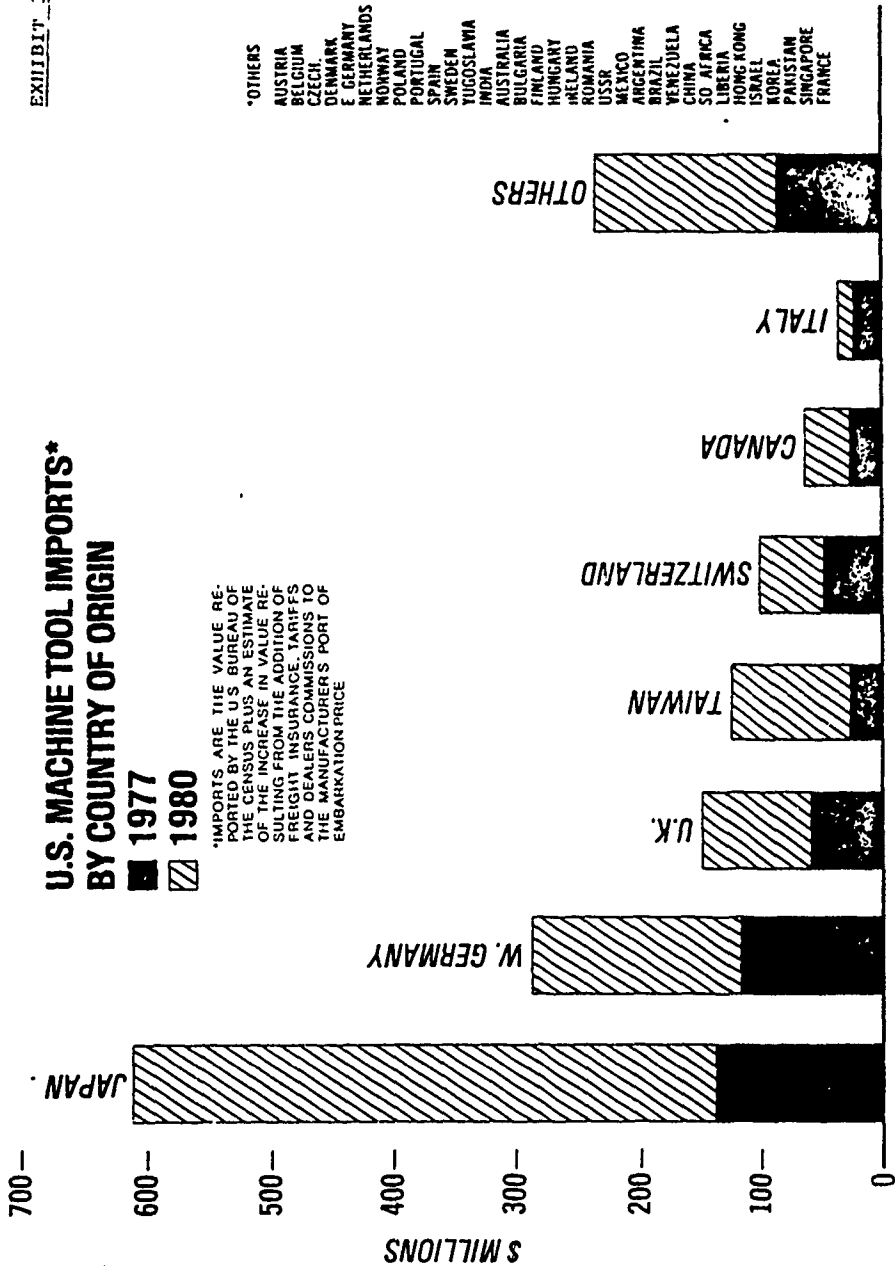


* Import values published by Commerce do not include import duties, freight, insurance, dealers' commission and other charges associated with bringing the machine to the United States. Values shown here have been adjusted to reflect such charges.

U.S. MACHINE TOOL IMPORTS*
BY COUNTRY OF ORIGIN

■ 1977
▨ 1980

*IMPORTS ARE THE VALUE REPORTED BY THE U.S. BUREAU OF THE CENSUS PLUS AN ESTIMATE OF THE INCREASE IN VALUE RESULTING FROM THE ADDITION OF FREIGHT, INSURANCE, TARIFFS AND DEALERS COMMISSIONS TO THE MANUFACTURER'S PORT OF EMBARKATION PRICE



SOURCES: NMTBA
U.S. CENSUS BUREAU

Prepared by NATIONAL MACHINE TOOL BUILDERS ASSOCIATION 2/81



Japanese Export Statistics

EXHIBIT 4

1976 - Japan's top ten machine tool export markets comprised 78.2% of the value of total exports. These were:

	<u>Country</u>	(millions of dollars) <u>Value of Exports</u>	<u>% of Export Total</u>
1)	USA	\$57.4	22.4%
2)	Rep. of Korea	48.9	19.1
3)	Poland	16.0	6.2
4)	Taiwan	14.8	5.8
5)	PRC	14.7	5.7
6)	Brazil	10.2	4.0
7)	Australia	9.2	3.6
8)	Russia	7.8	3.0
9)	U. K.	7.7	3.0
10)	Canada	7.1	2.8
11)	W. Germany	6.6	2.6
		<hr/>	<hr/>
		\$256.5	78.2%

1981 - Japan's top ten machine tool export markets comprised 79.7% of the value of total exports. The top ten were:

	<u>Country</u>	(millions of dollars) <u>Value of Exports</u>	<u>% of Export Total</u>
1)	USA	\$691.1	49.0%
2)	W. Germany	87.2	6.2
3)	Australia	56.2	4.0
4)	U. K.	50.9	3.6
5)	Russia	49.6	3.5
6)	So. Africa	48.5	3.4
7)	Taiwan	46.8	3.3
8)	Belgium	34.9	2.5
9)	Korea	30.8	2.2
10)	Singapore	27.8	2.0
		<hr/>	<hr/>
		\$1,909.2	79.7%

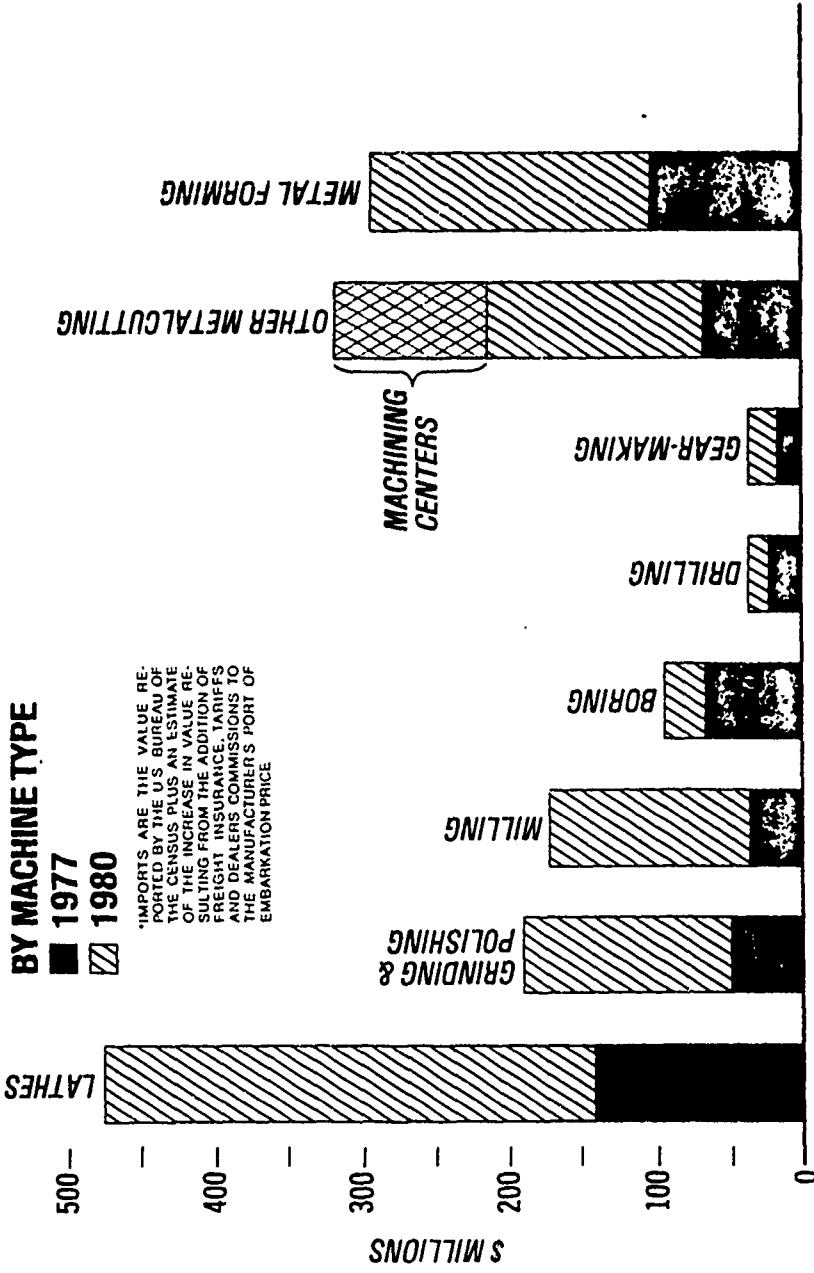
Source: Japanese Tariff Association

Spring, 1982

U.S MACHINE TOOL IMPORTS* BY MACHINE TYPE

■ 1977
▨ 1980

*IMPORTS ARE THE VALUE REPORTED BY THE U.S. BUREAU OF THE CENSUS PLUS AN ESTIMATE OF THE INCREASE IN VALUE RESULTING FROM THE ADDITION OF FREIGHT INSURANCE, TARIFFS AND DEALERS COMMISSIONS TO THE MANUFACTURER'S PORT OF EMBARKATION PRICE



SOURCES: NMTBA
U.S. CENSUS BUREAU

Prepared by NATIONAL MACHINE TOOL BUILDERS ASSOCIATION 2/81



It's Wrong

to make American weapons with foreign machine tools!

Wrong because...

it puts our national security and safety in jeopardy. For a sustained defense effort, America needs a strong machine tool industry. Yet, more than half of the computer controlled machine tools bought in America last year were imported.

Wrong because...

it gives foreign manufacturers and their workers, and their governments, vital bits of information about American defense efforts. Individually, these bits may be useless. But added up?

Wrong because...

it puts Americans out of work, takes billions of dollars out of the American economy, decreases the tax base, increases the trade deficit, and helps to finance and strengthen foreign industry.

Wrong because...

it "saves" pennies at the cost of impairing America's defense ability. We all want to balance the budget, but when we spend tax dollars for cheaper foreign machine tools, what loss America saves? Less than nothing. The money "saved" has done irreparable damage to a vital American industry.

Wrong because...

you can't make anything from combs to cars to rockets without machine tools. They are indispensable to American life. As this foundation is chipped away, everything we know is threatened.

Wrong because...

if America became involved in a war, our foreign machine tools could be rendered virtually useless, for lack of replacement parts. We live in a volatile world—anything can happen, anywhere, at any time.

American machine tools make America possible.

Mass production of rifles, one of Eli Whitney's ideas, was achieved with machine tools. It was called "The American System." American machine tools made us the arsenal of democracy in World War II. And they gave us the highest standard of living ever known on earth.

American machine tools are the foundation of American life as we know it. Yet last year we imported proportionally more machine tools than automobiles or steel. Why? Not because foreign machine tools are better or more advanced. Simply because they're cheaper. Why are they cheaper? For many reasons ranging from low wages to special government treatment for their machine tool industries.

The \$1.5 billion spent on foreign machine tools was lost to the American economy, and that hurts jobs, taxes, and balance of trade. What's worse, our \$1.5 billion was added to the muscle of foreign industry, to help it continue to muscle us on our own.

We're feeding the hand that bites us!

America is the most industrialized nation on earth. There is scarcely anything we use, enjoy, benefit from, or even touch in our daily life, wars and play, that is not a product or service of industry. Think about it. Without industry, we wouldn't have most of our home-made furniture, a log cabin and a garmin in the backyard.

That's why machine tools—our special interest—are of special interest to you and the nation.

Machine tools shape or form metal by various means. They make products, molds, and other machines. One out of every five workers are employed by industries that use machine tools.

We're losing vital skilled employees!

Machine tool builders are highly specialized, highly skilled people. When a shop is forced to cut back, these people lose their jobs. That's bad enough. But there's more. Those skilled people find other

jobs—and then when America needs machine tools, the skilled workers aren't as able to make them.

We welcome competition. But imports are threatening to destroy our industry, and with it the viability of the entire American industrial base and our national security. Since 1971 machine tool imports have exploded from \$90 million to \$1.5 billion. At this moment, 36% of the machine tools bought by U.S. industry are imported. The implications are alarming for our security and our way of life.

By now it must be plain to every thoughtful reader that a thriving American machine tool industry is absolutely essential to America's well being.

In the Pentagon and elsewhere officials are gravely concerned about the plight of the American machine tool industry. Many people in Congress and the administration are working on ways to right the wrongs. They need your help, support, understanding, and encouragement.

Write to your Congressmen, Senators and President Reagan. Write to your newspaper. Speak out. Tell them that a strong American machine tool industry is vital to American defense, security, and industry.

NATIONAL MACHINE TOOL BUILDERS' ASSOCIATION

1901 Westpark Drive, McLean, Virginia 22102



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BLANK

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United States Senate

COMMITTEE ON FINANCE
 WASHINGTON D.C. 20510

ROBERT E. LIGHTWYLER, CHIEF COUNSEL
 MICHAEL STERN, MINORITY STAFF DIRECTOR

March 22, 1982

Honorable Caspar W. Weinberger
 Secretary of Defense
 The Pentagon
 Washington, D.C. 20301

Dear Secretary Weinberger:

I wish to bring to your attention a matter of great concern to me involving America's defense preparedness as it relates to our industrial base.

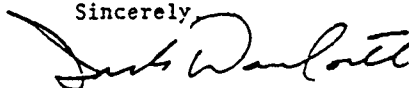
At the present time, the machine tool industry in the United States is faced with a significant increase in imports of machinery from foreign manufacturers. Last year, over one third of all machine tools sold in this country came from overseas. Further, while U.S. machine tool manufacturers experienced a 37% decline in business in 1981, imports increased by some 14%.

As Chairman of the International Trade Subcommittee in the Senate, the impact of such an increase in imports on the American machine tool industry and our economy in general is extremely worrisome in and of itself. However, in view of this industry's key role as manufacturer of the basic tools that are used in America's defense-related industries, our growing dependence on imports must also be considered in a broader context than that of U.S. trade policy.

To this end, I would appreciate your consideration of the problems faced by America's machine tool industry as it relates to the state of our industrial preparedness.

Best regards.

Sincerely,



John C. Danforth

cc: Honorable Malcolm Baldrige
 Honorable Bill Brock

FEB 24 1982

EXHIBIT 9

United States Senate

COMMITTEE ON BANKING, HOUSING, AND
URBAN AFFAIRS
WASHINGTON, D.C. 20510

February 10, 1982

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

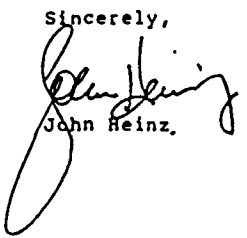
In recent months I have become concerned about our defense industrial base. As you well know, the United States must remain at the cutting edge of technology in order to offset the numerical edge which our potential adversaries possess.

That is why latest statistics on the machine tool industry are so worrisome to me. Machine tool sales in December were the lowest in five years. Worse still, imports captured a 36 percent share of all machine tools purchased in the United States in 1981, and in the most technically advanced and defense sensitive equipment, numerically controlled lathes and machining centers, imports captured more than 50 percent of all U.S. sales. Clearly, this nation is losing its market leadership in this core industry, one important not only to the revitalization of our industrial plant but key to maintenance of the superiority of our defense industries as well. We simply cannot afford to become overly dependent on foreign sources for these vital products.

Last month, the Commerce Department commissioned a study of our nation's technological-industrial base. That is a good beginning. But we must do more than just study this problem. I know that you share my concern about our nation's defense industrial base. I stand ready to join with you in finding solutions to the problems now facing our nation's machine tool industry and look forward to hearing your thoughts on this issue.

With warm personal regards,

Sincerely,


John Heinz.

JH:pfj

United States International Trade Commission
Washington, D.C. 20436

Notice of Termination of Investigation No. 332-138
Competitive Assessment of the U.S. Metalworking
Machine Tool Industry

AGENCY: United States International Trade Commission

ACTION: Termination of investigation


EFFECTIVE DATE: April 7, 1982

BACKGROUND: The Commission, on its own motion, instituted, effective February 5, 1982, investigation No. 332-138, under section 332(b) of the ~~Tariff~~ Act of 1930 (19 U.S.C. 1332(b)), for the purpose of gathering and presenting information on the competitive position of the U.S. metalworking machine tool industry. This study was to assess the impact of the growing competition from imports on the U.S. metalworking machine tool industry, explore the related development of further competition in the industry's overseas market, and examine the steps that have been taken and may be taken to counteract these developments.

Because of changes in workload and staffing limitations, it is not feasible for the Commission to continue the subject investigation at this time. Therefore, the Commission, on its own motion, has hereby terminated the subject investigation.

Notice of the institution of the investigation was published in the Federal Register of February 18, 1982 (47 F.R. 7350).

By order of the Commission.


Kenneth R. Mason
Secretary

Revised April 8, 1982

Mr. BINGHAM, First of all, I would like to ask any of you, why is it that the Japanese have made such inroads in the American market? In the light of what you have just said, Mr. Seibert, about U.S. products being the equal of any in terms of high technology and the rest, why have the Japanese been doing so well?

REASON FOR JAPANESE TOOL INDUSTRY SUCCESS

Mr. MAFFUID. Mr. Chairman, I would like to answer that.

Last June our association conducted an IOGA trade mission to Japan, an industry-organized, Government-approved trade mission, comprised of 10 leading executives and chief operating officers of our machine tool industry. The purpose of this trade mission was to study Japanese productivity. We toured 14 very modern plants, 9 of which were machine tool builders, 5 of which were related manufacturers. We wrote a lengthy report for our industry on this trade mission, and then made it available to everyone concerned.

The productivity of the Japanese machine tool industry that is export oriented is of a magnitude unmatched in the United States. Their marketing effort is geared to their high rate of production. In the United States, our rate of production is geared to firm orders coming in the door. They are built as they are ordered by customers.

In Japan, the machine tools selected for export are massproduced. And they utilize to the fullest extent the social and governmental structure of the country, which enables them to effect economies and gain assistance that our manufacturing plants cannot. They manufacture at high production rates that are not beyond the capability of the United States, because the cutting speeds of Japanese industry clearly are not as fast as ours in American factories. They produce their machines much faster and more economically than we do, and they must create a market for them because they are not sold. They are just produced, as we would produce consumer items in the United States, and mass market them. They are available quicker than our machines are because they are made in advance. And the prices of the machines are reflected by the mass production methods. Thus they are offered for sale with a quick delivery and at an attractive price. They are building the machines that are the popular machines. They are not mass producing the less popular machines.

Mr. BINGHAM. Essentially then, it is a question of price and quick availability, not quality?

Mr. MAFFUID. In many cases the machines are of comparable quality that you will find in world class machines.

Mr. BINGHAM. Regarding the matter of our share of foreign markets having declined substantially, I have here a statement that, according to Business America, our machine tool exports have grown in dollar value from \$251 million in 1977 to \$718 million in 1981. Does that sound about right?

Mr. MAFFUID. Those figures sound right, but our total shipments doubled in that period also.

Mr. BINGHAM. What I am getting at is that this indicates that the total, perhaps the total world market has vastly increased. We

may have a smaller share of it, but our exports have been going up in gross terms very rapidly.

Mr. MAFFUID. Yes, they have, Mr. Chairman. Our percentages remained very close over the past 6 years. Our share of the world market, percentagewise, has not vastly changed.

Mr. BINGHAM. Well, I understood from your statement that our share had declined from 21 percent in 1964 to 10 percent in 1981. That goes back almost 20 years but you say in recent years the share has not declined substantially.

Mr. MAFFUID. We are down from 26 in 1976 to close to 20 percent now.

Mr. SEIBERT. If I may add to that, sir, you were discussing dollar value. The individual cost of a unit, a machine tool, has increased drastically as they have become more and more sophisticated. Consequently, the dollar value of the products would have increased rapidly as opposed to the number of units of machine tools that are being sold around the world.

Mr. BINGHAM. Are you recommending denial of the 10-percent investment tax credit to U.S. firms that purchase foreign machine tools? Is that one of your recommendations?

Mr. MACK. Mr. Chairman, some have proposed that.

Mr. BINGHAM. Would you identify yourself, please?

Mr. MACK. I am Jim Mack, public affairs director for the NMTBA. That issue is under consideration in our association's government relations committee, which is meeting tomorrow.

Mr. BINGHAM. I see.

Mr. MACK. We are a day premature.

LACK OF EXIMBANK FUNDING

Mr. BINGHAM. On page 15 of your prepared statement, you discuss the efforts of your members to sell machine tools in Mexico, stating that the Eximbank denied the loan and applications for these transactions on grounds of an adverse impact by the Mexican project on employment in the United States. What was the outcome of that, and did those orders go to foreign competition?

Mr. MAFFUID. Yes, Mr. Chairman, they did; on three large projects, as a matter of fact, it wasn't just one. I might add, with the Department of Commerce we just concluded the largest machine tool show ever held in Mexico, in March. Despite the currency fluctuation in Mexico, the 40-percent devaluation, and despite a week of unduly stormy weather, we had a record crowd and sold off the floor nearly \$3 million of American machine tools—a highly successful show on an individual basis, with the Commerce Department.

However, the large projects in Mexico have not been funded by Eximbank, but the presentations have been very accurate and very well presented. The reason for the loans being turned down as stated by Eximbank was the impact on labor in the United States. However, as our testimony says, Mr. Chairman, these parts to be manufactured in Mexico will be shipped to the United States anyway because they have contracts for them. The thing that will be lost will be the sales by our members from various locations in America. The United States will lose the jobs and the companies

will lose the profits for research and development. But the parts will still come into the United States, they will still be imported because the contracts are firm. The orders went to three different nations. We lost every one.

Machine tools are not that expensive versus projects that Eximbank normally handles—like turbines, and big aircraft. But for the machine tool industry these were extremely large sales.

Mr. BINGHAM. Do you know whether your competitors were getting subsidized financing?

Mr. MAFFUID. I believe all three sales were handled by Eximbanks of the building countries.

INDUSTRY'S ABILITY TO MEET DEFENSE REQUIREMENTS

Mr. BINGHAM. You argue, and I think correctly, that the machine tool industry is of great importance for U.S. defense. Specifically, how does your ability to export affect your ability to meet U.S. defense requirements?

Mr. KUBA. If I may comment on that, Mr. Chairman, I think in one case the ability to export increases the revenue generated on behalf of our members. That is money that is used, set aside for R&D, to enable them to continue the capability to produce higher technology machine tools.

Mr. BINGHAM. So your argument is that it is a general strengthening of the industry?

Mr. KUBA. Yes, sir. Also, Mr. Chairman, when the industry is slack, and we lose people, the ability to recapture technical labor is extremely difficult. Today's complex machine tools and tooling people are not easily trained for, and these people are usually lost forever.

Mr. BINGHAM. Thank you.

Mr. Lagomarsino.

INCREASED SALES OF IMPORTED MACHINE TOOLS

Mr. LAGOMARSINO. Thank you, Mr. Chairman. I would like to go back to the question that the chairman started off with for anyone on the panel. To what factors do you attribute the increased sales of imported machine tools? Is it costs, quality? And you might also, in answering that, tell me how imports have been unfairly competing with U.S. products, if in your view they have.

Mr. MAFFUID. At the present time our industry is in a very bad recession. But 2 years ago our backlog was a 2-year duration. If the industry worked full time, it would take 2 years to clear up their order books. At that time foreign machine tools were brought into this country, readily available, so they were in a very attractive position. In some cases perhaps they were not the machine the customer would eventually want, and in other cases they were a direct competitor and a good machine. But they sold because of being available for immediate delivery and the customer would not have to wait a long time to put the machine on line. But the important thing is, that statistically, when a market share is captured during these times of long deliveries, the foreign builders never lose that position. They maintain that plateau until the next time that deliveries are extended. This can be statistically traced.

Mr. LAGOMARSINO. I guess what you are saying is that it was availability more than cost or quality?

Mr. MAFFUID. Well, when the delivery time is extensive, it is availability. When delivery times are shorter, it can be both that as well as price.

Mr. LAGOMARSINO. What is it today? I take it there is no backlog at this time.

Mr. MAFFUID. There is little. Today it is somewhat availability, but it is certainly price. Prices are considerably lower, and they are lower because the production that we have witnessed in Japan—and it is the marriage and the tie-in between the bank and the trading company and the government that enables machine tool companies to afford the ability to produce them at high production.

I have been in the machine tool business my entire life, from the design, building, and the usage positions. I can tell you that they are manufacturing in Japan, considering overhead to be equal, at approximately 40 percent less than we are. They can afford to manufacture at this rate because they are allowed the business tie-ins that we are not. Our members could not build and stock. They would go out of business. But with the changeoffs between trading company and bank, the Japanese builders can discount their paper and have the money to continue their operation. We could not do this here. We would go out of business quickly.

Mr. LAGOMARSINO. You think the Export Trading Company Act as passed by the Senate would be helpful?

Mr. MAFFUID. I certainly do, sir.

Mr. LAGOMARSINO. As you know, this subcommittee has been very supportive of that legislation and has acted favorably on it.

Mr. MAFFUID. I know that, and I applaud your efforts.

Mr. LAGOMARSINO. You mention the Eximbank, several of you did. How would you characterize its priorities with regard to your industry? Or is there such a thing?

Mr. MAFFUID. A \$200,000 machine tool is quite expensive. So we don't come up to the figures needed for direct loans. We seldom match the direct loan requirements of Eximbank that people who sell multimillion dollar aircraft and turbines do. But we compete with other Eximbanks around the world and that is where we get beat.

It seems when we enter into an agreement with Eximbank, the prerequisites of labor impact have ruined our efforts. I am very sorry to say that Eximbank seems to have the reputation of being a subsidy for big business. But I clearly feel they should have a sign on top of their building, "This is where we create U.S. jobs." I think that is needed to define their role.

TEN-PERCENT INVESTMENT CREDIT

Mr. LAGOMARSINO. I take it that your association has not made a decision yet on the question of repealing the 10-percent investment credit. What particular things would you recommend to Congress that we do to help your industry? And I agree, it is a very vital industry, not only to our general economic health, but certainly to our defense buildup.

Mr. MACK. You mentioned the 10-percent investment tax credit. We did allude to it in our testimony. Some in our industry and some in the Congress have suggested that if you were to deny the 10-percent investment tax credit to foreign machine tools, you might well pick up, based upon 1981 figures, \$143 million in additional revenues for the U.S. Treasury. I realize that with the kind of deficits that you gentlemen are wrestling with, that may not be considered much. But as Senator Dirksen said—if you add \$143 million here and \$143 million there, pretty soon it adds up to real money.

Recognizing that almost any tax increase that might be proposed is going to be painful to somebody, this might be considered one that would help an industry which is critical to the national defense. National security is also the justification and rationale that would comport the proposal with the General Agreement on Tariffs and Trade which has, as you are well aware, a general exception to its application where a signatory believes that its national security is being impaired. We believe the national security is being impaired by the very substantial impact that machine tool imports now have on the U.S. industry. That is one way that you might be helpful.

RECOMMENDATIONS TO HELP INDUSTRY

My colleagues have talked about making available adequate lending authority for the Export-Import Bank. Your subcommittee is going to have before it next year reauthorization of the Export Administration Act. Certainly making sure that we all play by the same rules, and that our Western trading partners are not taking advantage or perhaps not playing by the same rules, is, I think, an important reform that you could make in the Export Administration Act and an important contribution you could make to U.S. export performance. I know that efforts were begun in that regard during the last Congress, when we worked with your subcommittee in attempting that.

The passage of the Export Trading Company legislation is important. You correctly point out that there is a very different economic view of the world on the part of business in Japan, than there is in the United States. Many of the Japanese companies are owned and/or controlled by banking institutions. Their view therefore is towards a long-range market share rather than short-term profit, on the company's quarterly statement. That, in terms of making market decisions, production decisions, and productivity improvement decisions, gives them a significant leg up. If I can produce without regard to orders that I might have, turn my equipment over to a trading company, be paid by that trading company—when they receive the equipment, and if the risk is on the trading company to market my products in the United States, that gives me a significant competitive advantage. As Mr. Maffuid pointed out, at times when backlogs are substantial, if I can say to you as a consumer of machine tools I can get it for you tomorrow morning, that gives me a significant leg up.

Mr. LAGOMARSINO. Thank you.

Mr. BINGHAM. Mrs. Fenwick.

Mrs. FENWICK. Thank you, Mr. Chairman.

It seems to me there is a marketing problem here. And I wondered why would American industry not be able to handle the kind of production that you have described, and Mr. Seibert too, I think; in other words, just producing with regard to specific orders. Why don't we do it if it seems to be so profitable?

Is it something that American industry is not accustomed to and does not want to try? Is our market falling behind? I have a dozen questions. That is one.

The other one is on page 8, you speak of the exports—the machines. Paradoxically—the same type of machines we are prevented from selling in Europe are precisely the ones that are being sold by our allies. Now, is this because of some lack that COCOM is not working, or some lack of agreement? Isn't there a change? I had noticed a change in the Department of Commerce. It was more interested in encouraging business lately, it seemed to me, than in controlling it. Has there been no change in policy that restricts exports in this way? That is another question.

On page 10, I notice a curious thing. In the footnote, No. 5, the average age of government-owned machine tools is approximately 25 years. You seem to be concentrating there on government-owned machine tools. How about the machine tools or manufacturing equipment in the private sector? Could you give me some picture as to why we are so held up, one, with antiquated machinery, despite the Jones-Conable and all the other depreciation allowances we provided; two, the restrictions that you find on our being able to sell more freely.

Well, let's hear.

Mr. MAFFUID. Mrs. Fenwick, I would like to say, sitting at this table are three professional machine tool sales engineers. I am sure you can understand a successful sales campaign, because you just went through one. Congratulations.

JAPANESE SUCCESS ATTRIBUTABLE TO MASS PRODUCTION

Marketing mass-produced machine tools means that someone has to have the money to finance and store them. Our companies simply could not make the machines in that manner because they each constitute too great a portion of their total income to mass-produce them without firm orders, or enough money to keep the payroll going.

Mrs. FENWICK. How does Japan do it?

Mr. MAFFUID. They do it by being part of an infrastructure of a bank, a trading company, and the government. The trading company takes their machines, as Mr. Mack says, and they can discount their money at the bank and keep producing. But they must sell those machines sometime, someplace, to keep going. And that is why they are targeting their efforts worldwide, doing a job of selling a good product, at a very attractive price.

I feel certain that when they flood the markets of the world that we are having trouble getting into, and those markets are filled, they are not going to turn that production machine off. They are simply going to point both barrels at the United States. I don't

think our business structure and legal structure in this country can permit this to happen.

Mr. SEIBERT. Let me add to that.

Ma'am, our association is made up of approximately 400 member companies. They are basically small business people, employing anywhere from 100 to 150 employees in small cities around the United States. Totally, our industry accounts for less than \$5 billion worth of products produced per year. Japan does not have that magnitude of manufacturers. They have a select few. It has been reported to us if they are not able to capture more than 5 percent of a given market area, they are to disband it, get rid of that product line. They are targeting in on certain quantitative type machine tools.

Mr. MACK. We would all be in prison if we did those things in the United States.

Mrs. FENWICK. If you could outline, what would you think that government could usefully do to encourage the production of jobs, expansion of small business, in specifically machine tools? What would be the one, two, three, you would like to see us do.

EFFECT OF STRICT COCOM REGULATIONS ENFORCEMENT

Mr. MAFFUID. I would first like to see the handcuffs taken off American businessmen, especially the machine tool industry. Our competitive position is seriously eroded when we play by the rules and our Western allies do not: specifically, the COCOM regulations which we abide by, to the letter of the law, while our allied competitors absolutely do not. We can cite any number of instances of violations in the many countries around the world where we personally have seen the violations, as our members have.

The largest number of applications processed for license by any COCOM country, is by far, the United States. We outnumber the cosigners in license applications by a great percentage. However, the amount or percentage of exporting of high technology machines by these countries is greater than that of the United States. Why is this? I will tell you the reason why. It is simply that they ignore COCOM and go right ahead and export totally and freely. In addition, they make no effort whatsoever to conceal it.

Mrs. FENWICK. Have you brought this to the attention of our Department of Commerce?

Mr. MAFFUID. Mr. Kuba has served on the N/C TAC Committee in the past and so have I. We have brought foreign availability to their attention in many cases when licenses were applied for. Not only that, but at our machine tool show in Chicago, the largest industrial exhibit in the United States where more machine tools are purchased and perhaps shown than any machine tool show in the world—we have had members of Iron Curtain countries displaying the high technology machines that are readily available from our friends. Much of the technology that is being controlled in the United States, is, I must say, considered to be mickey mouse technology. It is the primary N/C technology, and it is being controlled as if it were the latest state-of-the-art. However, we cannot ship it; they can, and they simply keep getting the jobs and the profits.

Without going any further, I can tell you that the profits reaped are not used to drink champagne with. It goes back into research and development.

Because of this the United States is losing its leading edge of technology. Production as well as technology of machine tool controlling elements such as numerical control, has been equalled or exceeded by COCOM countries licensing our adversaries with that very same equipment.

Mr. KUBA. I would like to cite an example. In the spring of 1983, the National Machine Tool Builders Association with their members will be sponsoring a machine tool exhibition in China. For the participants to exhibit their products there, they have to go through a licensing requirement. This is merely for the purpose of exhibiting. And of course if they generate an order they then have to reapply for a license and wait for what type of approval will be forthcoming. This itself is somewhat of a handicap as compared to other countries.

Mrs. FENWICK. It's nonsense.

Mr. KUBA. Thank you.

Mrs. FENWICK. If you are allowed to exhibit, obviously you are exhibiting for the purpose of sale.

Mr. KUBA. I would certainly think in most cases, and I am so pleased to hear you say that. You can imagine the cost to an exhibitor who then has to reapply back to the United States for a license. What does he do with the machine in question—pay for storage costs, transport it back home?

ATTITUDE OF DEPARTMENT OF COMMERCE

Mrs. FENWICK. What does the Commerce Department say to you when you bring these things to their attention?

Mr. KUBA. I must compliment the Department because they made it somewhat easier today than years ago. At that time we could not show a machine unless we had an order for it, we could not even apply for a license. That has been revised dramatically.

Mrs. FENWICK. It seemed to me there was a new attitude. I had a small business in my district with a \$140,000 order. It meant a lot to that company to keep people employed, and it took months—although we were able to prove it was readily available for sale in Sweden and Switzerland I think—before they could sell it quite freely. It is incomprehensible. I have seen a change in attitude.

Regarding the Export Trading Company Act and the improvement that we are hoping to bring about to form trading companies, will that mean a great deal to you?

Mr. KUBA. Yes; it will. It certainly won't have a dramatic impact immediately. We are talking about a benefit derived over a long term.

Mrs. FENWICK. I was talking to a small businessman over the weekend. He is not in favor of involving the banks as partners with a small business in this enterprise. What is your opinion of that?

IMPORTANCE OF FINANCING AVAILABILITY

Mr. KUBA. I think you will hear pros and cons but one of the most important things of any industry is to have the availability of

credit or financing. If it is not forthcoming from government-supported programs, it must come from the private sector. Therefore, I think it is very important that banks participate, because they have the capital to be able to pay for those machines from the suppliers.

Mr. MACK. At least that they might have the opportunity to participate in an export trading company and to own, under certain restricted and regulated circumstances, a controlling share of an export trading company. What we are up against is the very same thing from Japan. Without bank participation, or at least the opportunity for bank participation, you really have just half a measure.

Mrs. FENWICK. I know my time is up.

Mr. ERDAHL [presiding]. Go ahead.

Mrs. FENWICK. I am interested in the footnote on page 10, about the old tools, No. 5 on page 10. How come? "It is also significant American industry has the highest percentage of old machine tools in the free world today." Why?

Mr. MACK. Over a period of years we have as a country had a tax structure that has discouraged investment, that has rewarded inefficiency and lack of productivity. And we are now reaping the whirlwind.

What the Congress did last year is going to help significantly when interest rates come down and people begin buying things that require machine tools to build them, and companies can afford to purchase machine tools.

Mrs. FENWICK. What in your view is the reason for the high interest rates? Have you a theory?

Mr. MACK. I guess we all have theories.

Mrs. FENWICK. How about just an opinion?

Mr. MACK. We provided some testimony to the Budget Committee last year. We would be glad to provide that.

Mrs. FENWICK. Can you tell me the gist of it?

Mr. MACK. Again, I think to some degree we are paying the price of actions that have been taken over a period of years.

Mrs. FENWICK. That does not help me much.

Mr. MACK. No; we will provide our earlier testimony for you.¹

Mrs. FENWICK. Thank you very much.

Thank you, Mr. Chairman.

Mr. ERDAHL. Thank you, Senator Fenwick.

Mrs. FENWICK. A bit premature, but I will let my prophecy stand.

NEED FOR EXPORT CREDITS

Mr. ERDAHL. One question I had is, you talk about the problem, maybe we talk about the possibility facing the machine tool industry as far as exports are concerned. Are there some things that make this particularly unique from other products that we as a country export and that we compete with around the world? Maybe

¹ See testimony of William Scott, executive vice president, VO Press Co., Inc, on behalf of the National Machine Tool Builders' Association, on September 10, 1981, before the House Budget Committee.

that has already been touched on. If you can summarize that for the record, I would appreciate it, for my information.

Mr. MAFFUID. I do not think it is unique, Mr. Erdahl. I think that any high technology industry in the United States essentially faces the same problems our industry does.

We are impacted by imports, perhaps more than other high-technology industries. But there are a lot of industries, as I am sure you are well aware, that are impacted by imports that are not as high in technology. The problems, however, remain the same. We do not have the export credits to work with, and we are restricted from exporting by Government controls. Added to that, of course, is the import problem. But I think if we were armed with export credits, and if we had the ability to export in a free but fair manner, that is equally with our allied trading partners around the world, I think the United States would practically own the industrialized world.

DIFFICULTIES OF SMALL BUSINESSES IN EXPORTING

Mr. ERDAHL. That brings another question to mind. A year and a half ago, I had a small business procurement conference in my district in Minnesota, the southern corner of Minnesota. One of the things that did come up this afternoon is how important the small business community has been in the export business. They have been one of the leaders, despite the difficulties they face in trying to deal with some of the regulations that we as a Nation put on our export business, and despite the problems they face with controls and restrictions that other nations put on them. We have in Minnesota companies like IBM, 3-M, Honeywell, and others. They have foreign departments, or whatever they might call them to deal with that. But the average small business person faces a very difficult time in trying to cope with these regulations, currency problems, everything else. They are not very well equipped to deal with those.

If there could be some cooperative venture, something that would enable the people from the small business community, which probably make up the bulk of this type of trade, if there is some way they could better cope with these problems. I see several people nodding their heads.

Again for the lady from New Jersey and myself, maybe you could make some comments on that.

Mr. MAFFUID. Yes, sir. Our industry is comprised—like your constituents, of small businesses. Seventy percent of our members qualify under SBA. If you added all of the machine tool builders up as one company in the United States, it would only be about 87 on Fortune's list of 500. Some of our members that are very small, under 150 employees, yet their business is up to 60 percent export, a miraculous figure. Many others are trying to attain that, to get rid of the sine curve business of the machine tool industry. And it is a cyclical industry in any country with such an industry. But if you look at the world market, it is not cyclical, it is a straight line practically, and people hooked to that straight line are in a healthy business condition.

Our members, I am proud to say, are fortunate in having an international trade department that is the size and the ability of ours, because we have been allowed to, and encouraged by, our association leaders and board of directors to do this. We have been of considerable help to our members.

Also, the Department of Commerce has helped us a great deal, as they would help any industry in the United States to export. But we have three people sitting at this table that travel overseas, as I stated before you arrived, sir, nearly 50 percent of our time. We have been active in export activities for our members in over 33 countries. We are there to help them. But I pity the small businessman that does not have this opportunity, or that does not realize that Commerce district offices can help them, or has to add people to his very small payroll to enable him to do this, because it would be crippling to him to put on the necessary people to enable him to effect an efficient export operation.

Mr. ERDAHL. Thank you very much. I was encouraged by one of the panel members making reference to the tax modification we passed last session. I am sure we were talking about the speed-up of the depreciation schedule. We hope that will be a very positive thing, not only for people expanding in the worldwide market, but trying to make a decent living here at home as well.

Another question. Which export promotion programs work and which ones don't in your opinion, and why?

EXPORT PROMOTION PROGRAMS

Mr. KUBA. If I can speak in generalities from our experience, there are a number of export programs that work and work quite well: Catalog shows are one, video catalog shows, IOGA-sponsored trade missions, and having the resources of our foreign commercial posts made available in setting up meaningful itineraries from the input from our commercial officers. They do an outstanding job. I am not certain you were here when the statements were made, but our association and members have participated in nearly 40 IOGA trade missions. So we speak with some degree of personal involvement in those activities.

Previously there had been other excellent programs that, unfortunately, may be winding down because of budget considerations, and that was the U.S. Department of Commerce trade shows sponsored, coordinated and run by the Department of Commerce, and the exhibit managers at the trade centers around the world—

Mr. ERDAHL. If I could interrupt you there. I am not trying to put words into your mouth, but would you feel the budget restraints that eliminate or seriously curtail those would be penny-wise and pound foolish for our country?

Mr. KUBA. Yes, sir. There is an excellent program called the foreign buyers program. This is an outstanding program. Unfortunately, I have heard it may be curtailed before the end of this year. I think that would have a detrimental effect to all of American industry not being able to capitalize on the service and resource of what that has done for our industries.

Mr. SEIBERT. My primary responsibility around the world is working in the underdeveloped countries. It is very vital to our

membership, particularly those small companies, to become involved in those marketplaces. One way to stimulate small business is get them by the hand and take them over there.

It is important we have trade missions to the underdeveloped countries, so that the American businessman can see the opportunities available to him, and consequently, American businessmen can assist the underdeveloped countries to pull themselves up. But without some type of support—and I don't necessarily mean financial support from the U.S. Government, but just strictly encouragement, but if you want to give me money I will take it—encouragement to get involved. Because we are talking about a long-term effort. We are not going to get a return on an investment by a private American citizen immediately in an underdeveloped country.

Mrs. FENWICK. I am so happy to hear you say this because that is precisely what I have noticed on the part of the Department of Commerce in regard to their actions in my State.

There is a small company, Henderson Scales, a black business, owned by Mr. John Henderson. I think they have 135 employees, and they were going to open the Asian market. They were taking also a small company called the Biodex, which makes medical diagnostic kits. They were going under the aegis of the department. I don't think money was involved—it was encouragement, it was know-how, it was suggestions, it was some kind of drive and zeal in the interest of the export market. This is what has led me to be so encouraged with the new attitude of the Department of Commerce, and their two fine people, Mr. Thomas Murray and Mr. Hilbert.

I wish you would give me more evidence of this kind of thing, because I have written to Secretary Baldrige about it to encourage this.

Thank you.

Mr. ERDAHL. As always, I would assure our guests here today, any committee where Mrs. Fenwick participates is well-attended. I am sure there will be some other questions from the chairman and some of our colleagues and staff who are not here today. I hope the members of the panel will be willing to respond to some questions that could come in writing later on. Thank you all for coming.

Any comments in closing? Hearing none, the subcommittee is adjourned.

[Whereupon, at 3:25 p.m., the subcommittee adjourned, to reconvene at the call of the Chair.]

OVERVIEW OF U.S. INTERNATIONAL COMPETITIVENESS

The Electronics Industry

WEDNESDAY, AUGUST 11, 1982

HOUSE OF REPRESENTATIVES,
COMMITTEE ON FOREIGN AFFAIRS,
SUBCOMMITTEE ON INTERNATIONAL
ECONOMIC POLICY AND TRADE,
Washington, D.C.

The subcommittee met at 2:45 p.m. in room 2200, Rayburn House Office Building, Hon. Jonathan B. Bingham (chairman of the subcommittee) presiding.

Mr. BONKER [presiding]. The Subcommittee on International Economic Policy and Trade will come to order.

I am not the chairman. The chairman is on the House floor, and will be arriving shortly, but we won't delay this hearing any longer.

The subcommittee meets today to continue our series of hearings on the competitiveness of U.S. exports in the world marketplace. At previous hearings, we heard testimony from representatives of the aircraft industry and the machine tool industry, two areas in which the Japanese have apparently targeted the marketplace.

Today we are pleased to hear from representatives of four trade associations, who will discuss the competitiveness of the U.S. electronics industry. I would note that a fifth association, the Semiconductor Industry Association [SIA], was invited to participate in this hearing, but was unable to provide a witness for this session. However, SIA's written statement will be included in the hearing record.¹

The subcommittee notes and appreciates the effort today's witnesses have expended to catalog the various problems that their companies face in international trade, and to formulate suggestions for remedies.

I see all the witnesses are at the table, so we shall begin. Congressman Lantos will at this time introduce the first witness, Victor Ragosine, who is a resident of Mr. Lantos' district.

Mr. LANTOS. Thank you very much, Mr. Chairman. I appreciate the courtesy and I apologize for having to leave shortly but I am participating in another meeting of the Europe and the Middle East Subcommittee.

¹ See app. 4.

As an international economist, I have long been interested in our high technology industries, and my congressional district, as you know, is one of the high technology districts; that is the San Francisco Peninsula. One of our most important industries is Ampex and Mr. Victor Ragsine has been a leader in the high technology industry nationally. It is my great pleasure and privilege to introduce him to the subcommittee.

Mr. BINGHAM [presiding]. Well, with that, Mr. Ragsine, I suspect you will be the leadoff witness. I think we will proceed in order that each witness will provide their statement and then we will open for questions.

In order to expedite the hearing and have enough time for questions, it would be helpful if the witnesses would summarize their statements. I assume that summaries are available because the statements are rather lengthy.

Mr. Ragsine, please proceed.

STATEMENT OF VICTOR RAGSINE, GOVERNMENT AFFAIRS CONSULTANT, AMPEX CORP., REPRESENTING THE AMERICAN ELECTRONICS ASSOCIATION

Mr. RAGSINE. Mr. Chairman and members of the subcommittee, I am Victor Ragsine, Government affairs consultant for Ampex Corp. based in Redwood, Calif.

Ampex manufactures computer peripherals, equipment for the radio and television industries, and magnetic tape. We have a vital interest in international trade and in U.S. policies which can affect that trade. We are particularly concerned about export controls and their economic impact on U.S. companies.

I am pleased to have this opportunity today to testify on behalf of the American Electronics Association [AEA], of whose international committee I am past chairman. I request our statement be made part of the formal hearing record.

AEA is an association of nearly 2,000 high technology electronics companies in 43 States. Some of the largest companies in the United States are members, but the majority of our member firms are small, rapidly growing enterprises currently employing less than 200 people.

AEA member companies have a vital stake in exports and international trade. In some of the larger companies, half their sales are to overseas customers. The smaller companies must increasingly compete in worldwide markets. Electronics companies contribute a favorable balance of trade as a partial offset to unfavorable balances incurred by oil and other imports. In 1981, electronic products produced a favorable trade balance of over \$5 billion, with electronic industrial products contributing a favorable balance in excess of \$10 billion.

Mr. Chairman, AEA appreciates the leadership you and the members of the subcommittee have shown in focusing Congress' attention and concern on the problems U.S. firms face abroad. We welcome this opportunity to testify on the competitiveness of electronic products. We believe this country must be forthright and aggressive in pursuing our trade and investment interests and rights.

SUPPORT FOR RECIPROCITY LEGISLATION

S. 2094, the Reciprocal Trade and Investment Act of 1982, as passed by the Senate Finance Committee, shores up the General Agreement on Tariffs and Trade [GATT] system and assists the U.S. Trade Representative in reducing barriers abroad to U.S. exports of products, services and foreign investment. AEA believes, S. 2094, coupled with the trade-enhancing tax measures you passed last year, will go a long way toward insuring the future competitiveness of U.S. electronics industries in world markets.

UNILATERAL AND MULTILATERAL EXPORT CONTROLS

The United States, together with the NATO countries, New Zealand, Australia, and Japan, participates in an international agreement which restricts shipments of dual-use products to the U.S.S.R. and the Eastern bloc countries. This agreement is administered by a committee headquartered in Paris: COCOM. These controls are generally effective in denying potential adversaries' products which may have a strategic importance.

In addition, the United States imposes unilateral controls or embargoes for foreign policy and human rights reasons. The United States also stands alone in having compiled a list of military critical technologies [MCTL]. The list is used as a basis for the denial of export license applications which might have been granted on the basis of COCOM criteria.

AEA is unequivocally in favor of multilateral controls of dual-use products and technical data. But there is a question of the effectiveness of unilateral controls; of the use of a military critical technologies list not accepted by our allies; and of the economic impact on U.S. companies of these controls and embargoes.

The United States does not have a leading position in all high technology industries. We may be a little ahead in some sectors, a little behind in others, and pretty much even in most, as compared to our trading partners and competitors in the COCOM countries. Unilateral controls thus lead to the loss of markets to our competitors in Europe and Japan. The argument has been made that the economic impact of this loss of market is small. For example, U.S. nonagricultural exports to the COCOM countries were approximately \$1 billion prior to the imposition of embargoes subsequent to the Soviet invasion of Afghanistan. It should be noted, however, that exports of our COCOM partners were significantly larger. There is no commercial reason why U.S. exports could not have been greatly increased.

Further, the United States enforces export controls for foreign policy, human rights and antiterrorist reasons to goods destined to South Africa, Yemen, Libya, Cuba, North Korea, Vietnam, and Kampuchea. Some of the controlled items are related to police activities and some contain military significant technology. Others are ordinary commercial goods, all of which require validated licenses.

ECONOMIC IMPACT OF EXPORT CONTROLS

The Export Administration Act of 1979 mandates a report from the President to Congress on the economic impact of export controls for foreign policy reasons.

The likely effects of the proposed controls on the export performance of the United States; on the competitive position of the United States; on the international reputation of the United States as a supplier of goods and technology; and on individual U.S. companies and their employees and communities, including the effects of the controls on existing contracts.

This report now consists principally of a compilation of sales lost and the dollar value thereof.

This doesn't represent the true impact of foreign policy controls. AEA recommends that a more rigorous estimate be made of the economic impact of all unilateral export controls. These should include estimates of the dollar value of license applications not filed because of the existence of controls; of sales lost because of unreliable supplier reputation; of followup sales lost due to initial denial or nonapplication; and market share lost because of delays inherent in the requirement for application for a validated license.

We further recommend that, in addition to the Department of Commerce, the Departments of Labor and the Treasury be involved to assess the effects of lost sales on employment and tax revenue. At the same time efforts should be increased to enforce compliance with multilateral agreements by companies in all countries covered by these agreements.

The Reagan administration is sensitive to the fact that acquisitions of sophisticated U.S. equipment and U.S. products and technology by the Soviet Union can put our country at a military disadvantage. The administration has recently taken a number of steps to limit these illegal activities.

As it is in the best interest of the U.S. export community to comply with the law, the AEA International Committee has recently initiated a program to advise our members of our Government's concerned attention on export controls and assist them in developing a comprehensive body of internal procedures. Export seminars across the country are being held to educate the companies in compliance with export laws.

Creation of a better dialog between business and the Government would be a valuable step toward the enforcement of U.S. export control policy. Sensitizing the business community to the problems of national security and educating the Government with firsthand information on business' concerns and how business can assist in the control process would be productive to a mutual end result.

AEA has also initiated a comprehensive review of the Export Administration Act regulations to simplify and reduce unnecessary documentation requirements. The results of our review will contribute to a better communication between the exporter and the Government, and assist in avoiding inadvertent exports and paperwork. We would be pleased to make our results available to this subcommittee.¹

¹ A copy of the American Electronics Association's export administration regulations enhancement project is retained in subcommittee files.

Thank you very much, Mr. Chairman. I would be pleased to answer any questions you might have.

Mr. BINGHAM. Thank you very much, Mr. Ragosine.
[Mr. Ragosine's prepared statement follows:]

PREPARED STATEMENT OF VICTOR RAGOSINE, AMPEX CORP., FOR THE AMERICAN
ELECTRONICS ASSOCIATION

Mr. Chairman and Members of this Distinguished Committee:

I am Victor Ragosine, Government Affairs Consultant for Ampex Corporation based in Redwood, California. Ampex manufactures computer peripherals, equipment for the radio and television industries, and magnetic tape. We have a vital interest in international trade and in U.S. policies which can affect that trade. I am appearing before you today on behalf of the American Electronics Association, of whose International Committee I am past chairman. AEA is a trade association of nearly 2,000 electronics companies in 43 states. Our members manufacture electronic components and systems or supply products and services in the information processing industries. Our member companies are mostly small rapidly growing businesses currently employing fewer than 200 people.

AEA member companies have a vital stake in exports and international trade. In some of the larger companies, half of their sales are to overseas customers. Electronics companies contribute a favorable balance of trade as a partial offset to an unfavorable balance incurred by oil and other imports. In 1981, electronic products produced a favorable trade balance of over \$5 billion dollars, with electronic industrial products contributing a favorable balance to excess of \$10 billion dollars.

AEA appreciates the leadership you and the members of the Subcommittee have shown in focusing Congress' attention and concern on the problems U.S. firms face abroad. We welcome this opportunity to testify on the competitiveness of electronic products. We believe that this country must be forthright and aggressive in pursuing our trade and investment interests and rights. This coupled with the enhancing tax measures you passed last year, will go a long way toward insuring the future competitiveness of U.S. electronics industries in world markets.

AEA believes that today we are at an important point of time for U.S. trade and investment policy. Great pressure is being placed on the GATT system of international trading rules because of what it does, and what it doesn't do. On the one hand protectionist forces, pointing to the visible effects of the current worldwide recession, are getting stronger both here in the U.S. and abroad. The political pressure is real to raise new tariff and non-tariff barriers to product exports, and to reinforce existing ones. On the other hand, increased use of "industrial policies" is resulting in protectionist mechanisms that are not covered by the GATT rules, but which threaten to undo the significant progress made since GATT negotiations began in 1948.

OBJECTIVES OF TRADE LEGISLATION

AEA has assessed these domestic and foreign political pressures, and analyzed carefully several bills introduced by Congress. We believe now is the time for the U.S. to do all it can to resist protectionism here and overseas by working to shore

up the GATT system and too expand the system of international rules to cover foreign investment and services. By initiating and passing appropriate legislation, Congress can address this dual threat to continued expansion of world markets by providing our negotiators the statutory backup and policy guidance they need to be successful in this critical endeavor. We think it is important that any legislation in this area:

- be consistent with the letter and spirit of the GATT system and United States' obligations thereunder;
- mandate and authorize the President to negotiate bilateral and multilateral treaties covering foreign direct investment and trade in services.
- expand the authority of the President under Section 301 of the Trade Act of 1974 to respond to foreign barriers to U.S. foreign direct investment;
- call on the Trade Representative and the Secretary of Commerce to compile an inventory of foreign non-tariff barriers to U.S. exports of products and services, and foreign direct investment;
- require a periodic report to Congress by the Trade Representative and Secretary of Commerce on the steps planned or taken to have these foreign barriers reduced or eliminated; and
- provide essential special attention on the high technology sector.

Senator Danforth's S.2094 "the Reciprocal Trade and Investment Act of 1982" meets our objectives and we endorse this bill.

Several bills in the House such as H.R.6773, and H.R.5596, as introduced by Mr. Frenzel meet some of these objectives and principles. AEA is pleased that Messrs. Shannon, Gibbons, Guarini, and Matsui have introduced H.R.6433, "The High Technology and Trade Act of 1982", which addresses all of them. Passage of this legislation will assist our Trade Representative in reducing barriers abroad to U.S. products, services and foreign investment. And by doing so it will alleviate the growing pressure in Congress to enact new protectionist and other GATT-inconsistent trade laws.

Let us now discuss our reasoning in light of some of the major difficulties our members increasingly face abroad.

HIGH TECHNOLOGY

If we examine our trade performance over the last two decades, it's clear that our R&D intensive, high technology industries are performing well in holding up the U.S. balance of trade. Our non R&D intensive, less competitive industries are in trouble, some partly because of foreign industrial policies that have targeted these sectors for special attention.

The U.S. has a distinct comparative advantage in high technology manufactured products and related services. Unfortunately, nearly all countries, industrialized as well as the Less-Developed-Countries, want to have their own high technology industries precisely because of the benefits the United States now reaps from them: new and better jobs, increased productivity, greater income and the better standard of living which results. Consequently, many governments have targeted this

sector for intervention via industrial policies, combining protectionism and active support.

Our industries require a worldwide market in order to support the increasingly expensive R&D and capital investments needed to stay in the forefront of technology and meet customer needs. The U.S. needs to be aggressive on efforts to keep these markets open to competition based on price and quality, other than on national origin. If the U.S. does not, we run the risk of losing the enormous benefits that our technologies can bring to the United States and to other countries. In our industry, we're only seeing the crudest beginnings of what can be accomplished to improve productivity and raise the world's standard of living. We are pleased that Ambassador Brock intends to place the sector on the agenda for the GATT Ministerial talks. We believe that the provisions of H.R.6433, the "High Technology Trade Act of 1982", provide a comprehensive basis and approach for negotiations in the forum or in other bilateral or multilateral talks with our principal trading partners.

FOREIGN INVESTMENT BARRIERS

For the last several decades, the U.S. has led the way in getting other countries to reduce their tariff barriers to U.S. product exports. As these feasible tariff barriers have come down, however, new, more subtle non-tariff barriers appeared. While the Tokyo Round MTN agreements addressed some of these non-tariff barriers, many remain.

Unfortunately, some of the most serious of the non-tariff barriers are ones which are not covered by any multilateral

rules, namely restrictions on foreign direct investment. This situation has been in part caused and compounded by two factors.

One, U.S. international investment policy has been neutral. That is, U.S. policy has been one of neither encouraging nor discouraging flows of direct foreign investments, and Congress has chosen to lead by example and by avoiding barriers to foreign direct investment in the U.S. Unfortunately, we haven't coupled this exemplary role with aggressive efforts to see that it is followed by others. At the same time, our negotiators' attention has been focused on efforts to reduce barriers to products trade under the GATT.

This neutral and passive policy has been undergoing review and consideration by the Executive Branch, and we are encouraged by actions which signal its increased priority status on the United States Trade Representative's agenda.

Two, the public discussion of this issue is quite sensitive for U.S. firms. Companies do not complain openly because they fear retribution. For years they have had to grapple with investment restrictions on their own, due in large measure to the lack of an aggressive U.S. policy. In some countries, firms have been able to negotiate agreements, often skewed in favor of the host nation, but which at least give them some limited access. These arrangements are something less than secure and subject to change at any moment. Because they are so tenuous, most firms are understandably reticent to be identified publicly with any criticism of the governments involved.

But that's not because the problem is not wide spread. It is. Restrictions on foreign direct investment are formidable, especially for the smaller firm.

In our industry in order to sell computer systems or other high technology products to customers overseas there must be a commitment -- made by us -- to provide service and maintenance for the products we sell. We must have the ability to establish local subsidiaries for these purposes. It is for this reason that we view investment and trade as two sides to the same coin. Their interaction is vital since they provide mutual support for each other in world competition. The ability to invest in manufacturing, sales and service operations is a primary vehicle of trade today.

For young companies, the most onerous of these are restrictions on our ability to establish local, majority owned sales and services subsidiaries that we can manage properly. In an increasing number of countries, we cannot now establish such subsidiaries unless we are willing to surrender majority ownership to a local partner, and hence, our control over the operations, and over our technology which we developed at great expense. The ability of an American company to take advantage of business opportunities in a rational and timely way is limited if it has approval for such actions. The majority owner may have no interest in our knowledge of the business and may be unable to appreciate the dynamics of the situation as they arise.

There are a host of other restrictions on foreign direct investment, including export performance requirements, demands that a certain percentage of the final product contain materials or technology that is "sourced" locally, requirements that the foreign firm transfer the technology or "knowhow" either

immediately or after a certain period of time, requirements for local training and conduct of R&D within the host country, and so on. In combination, these restrictions make it unattractive for U.S. firms to invest. Unfortunately, in many cases a decision not to meet these demands may deny a U.S. firm from fully participating in these markets.

Mr. Chairman, companies such as we represent are not out simply to take advantage of an economy, and then exit without leaving anything behind. We are interested in complete, long term involvement in those economies, which means realistically contributing to the local infrastructure and technology base. But these contributions flow naturally from the demands of our business. They cannot be dictated by government fiat. We have a mutual interest which can be met only by allowing a competitive, fast-moving business to be managed like one.

With these kinds of problems in mind, we strongly support legislation that would mandate and authorize our negotiators to seek bilateral and multilateral agreements to reduce the trade and capital flow distorting effects of such investment restrictions. In the short term, bilateral treaties are the practical solution. We would be following the practices of France, Germany, Japan and others in doing so. The longer term objective should be multilateral solution, based on the numerous bilateral arrangement that could provide the necessary momentum for new international rules.

We also welcome expansion of the President's authority to respond under Section 301 if such negotiations are unsuccessful

and such practices continued unjustifiably and unreasonably to burden, restrict, or discriminate against U.S. negotiators presently having little leverage in this area. Presidential authority to respond would provide an appropriate and needed bargaining tool.

INVENTORY OF NTBS TO PRODUCTS, SERVICES AND FOREIGN INVESTMENT

AEA would support legislation to require the USTR and the Commerce Department to develop an inventory of the major non-tariff barriers abroad to U.S. product and service exports, and foreign direct investment. We also support provisions that would require periodic reports to the Congress on the steps the United States Trade Representative has taken, or plans to take, to have these barriers reduced or eliminated.

CONSISTENCY WITH THE GATT

Since the creation of the General Agreement on Tariffs and Trade (GATT) the United States has taken the lead role in efforts to persuade our trading partners to adopt the GATT's basic multilateral principles of national and most-favored-nation treatment, and thereby reduce world barriers to product exports. In asserting this leadership role, Congress has deliberately chosen to lead by example by passing trade laws to mirror those of the GATT; I think that it is fair to say that without the U.S. commitment, there would be far more trade barriers abroad than there are today.

AEA believes it is absolutely vital that the U.S. not abdicate this leadership role. Any action that would compromise this role would likely lead to greater barriers to our product

exports. There are many countries which would welcome an excuse to bend to domestic pressures and erect new import restrictions. There are others which might well feel compelled to retaliate if U.S. legislation were to affect exports negatively. And chances are good that our strongest, most competitive, exporters would be the ones to bear the brunt of either reaction. The negative consequences for jobs, income and related tax revenues could be enormous if this were to occur.

The GATT currently provides for reciprocity under mutually agreed procedures and rules. AEA supports that process. AEA therefore would support legislation which would reinforce the U.S. commitment to that process. We would thereby support its continued use in assessing whether a given country or group of countries is measuring up in an overall sense, given the specific circumstances, to its trade agreement or GATT obligation and responsibilities and thereby be eligible for future U.S. trade concessions.

AEA opposes legislation that would allow unilateral retaliation or require bilateral "reciprocity" outside the GATT on an industry sector or product basis. Such legislation would fly in the face of GATT principles and obligations, and would invite protectionism and retaliation here and abroad.

We must aggressively enforce abroad our trade and investment rights and interests. We cannot afford to abdicate our leadership for free and open markets for trade and investment. We must be aggressive at home in resisting the temptation to raise trade barriers. And we must be forward-looking and see to

the needs of our strongest industries before the weight of barriers abroad become so heavy as to be politically too difficult to eliminate. Viewed from our perspective, we no longer have the luxury of time. We need legislation and policy that addresses these objectives now.

U.S. Export Incentives

Domestic International Sales Corporation (DISC)

Domestic International Sales Corporation is perhaps one of the major export incentives for exporters within the AEA membership. DISC has been widely and successfully employed by our large, medium and small firms. DISC incentives have convinced management of the importance of exports and have better enabled them to compete abroad on more equal terms against subsidized foreign competitors.

As an incentive, DISC has served to focus attention upon producing goods within the U.S. for foreign markets. AEA believes DISC should be retained to promote exports and to help U.S. employment. Eliminating DISC now would be telling U.S. industry that the U.S. government does not care about exports. This Administration has been fighting long and hard with our partners in GATT to retain DISC and we endorse their commitment.

Manpower

Changes in U.S. tax law, particularly those encouraging increased cooperation between U.S. high technology companies and universities throughout the country, will address but certainly not solve another pressing problem: the shortage of skilled manpower which is currently confronting the electronics industries.

This past year, AEA initiated a survey to gather nationwide statistics to determine the current extent of the manpower shortage plaguing the electronics industries, and to see what the status will be four years from now. As shown on the following chart, U.S. high technology firms will experience a dramatic increase in the need for technically qualified personnel through 1985.

Among the survey's findings:

- The continued healthy state of the computer and computer-related part of the industry will feel a greater need for computer specialists.
- The heightened demand for laser technicians indicates this part of the industry will begin to blossom more fully.
- The burgeoning semiconductor segment will need more micro-electronics technicians.
- The shortage of technically trained personnel is real and its magnitude significant: Of the 1,265 AEA member and non-members surveyed, 48 percent reported a need for 55,000 new electronic engineers and computer science engineers, 16,000 electronic technicians, and 66,000 assemblers through 1985.

The shortage of skilled manpower is a multi-faceted problem that does not lend itself to a single legislative solution. We believe solving it will require action by individual companies, state and local governments, the electronics industry at large as well as by the Federal government. As I have said, a number of

improvements in federal law have already been made. These however are not enough and the high technology electronics industry, through its trade associations, has proposed additional steps in the introduction of H.R.6484,, "The Scientific Research and Education Act" by Mr. Shannon and S.2474 and S.2475 by Senator Bentsen. This bill will help address the shortage of adequately trained technicians by expanding existing Federal income tax provisions to encourage corporations to increase their education and research donations to colleges and universities.

Research and Development

To remain competitive in an interdependent world that is growing and advancing around us both economically and technologically, AEA believes substantial investments must be made in U.S. research and development. U.S. expenditures for R&D since 1960 have declined in both real and relative terms. When measured as a percent of GNP, U.S. R&D expenditures dropped from a peak of 2.95 percent in 1964 to 2.22 percent in 1979, a decline of almost 25 percent. A number of complex and inter-related factors can be seen as the cause for this decline, among them: the constantly increasing cost of money, the escalating size of investment required to reach meaningful results. the risk factors in our unstable economy, etc. These have reduced the ability of U.S. business to fund research and development activities to the level needed to maintain our competitive position relative to our trading partners.

The need is to focus more of this nation's resources on R&D - the key which in the past has opened the door to the unparalleled

success of U.S. industries, at home and abroad. There is ample evidence of a significant positive correlation between an industry's commitment to R&D and its growth in both domestic and export markets.

AEA has strongly supported a number of tax changes designed to stimulate research and development and are working on a survey to show what effect the credit has had on R&D in the electronics industry. Several of these measures were enacted by the Congress in the Economic Recovery Act of 1981. These include:

1. A 25 percent tax credit for increases in R&D spending over the average of the three previous years;
2. Inclusion in the tax credit of 65 percent of a corporation's research grants to universities;
3. Assignment, under the accelerated cost recovery provisions, of R&D equipment to the three year category, and
4. Permission, over a two-year period, for U.S. corporations to allocate all U.S. incurred R&D expenses to U.S. source income.

Valuable as these changes are, AEA believes much of their impact will be lost unless the following additional actions are taken:

1. The definition of "Research" being developed by Treasury for the tax credit must be broad enough to encompass the needs of U.S. high technology companies;
2. The January 1, 1986 "sunset" for the R&D tax credit must be extended;
3. The tax credit for corporate donations to universities for research should not be limited by inclusion in the three year base period;

4. The cost of capital for U.S. exporters should be brought into line with that of their competitors in Japan and Germany where there is no tax on capital gains.
5. U.S. incurred R&D expenses should be made permanently deductible against U.S. source income.

U.S. Export Disincentives

The administration and implementation of the U.S. export control policy is a major disincentive for our industry. Export controls, although necessary for our national security, economic well-being, and at times desirable for our foreign policy, often discourage U.S. businessmen and place them at a competitive disadvantage.

The United States, together with the NATO countries New Zealand, Australia, and Japan, participates in an international agreement which restricts shipments of dual use products to the USSR and the East Bloc countries. This agreement is administered by a committee headquartered in Paris (COCOM). These controls are generally effective in denying potential adversaries products which may have strategic importance.

Unilateral Export Controls

In addition, the United States imposes unilateral controls or embargoes for foreign policy and human rights reasons. The United States also stands alone in having compiled a list of military critical technologies.

AEA is unequivocally in favor of multi-lateral controls of dual use products and technical data. But there is a question of

the effectiveness of unilateral controls of products and technical data; of the use of a military critical technologies list not accepted by our allies; and of the economic impact on U.S. companies of these controls and embargoes.

Presumably, the rationale behind extending U.S. unilateral controls would be: (1) to prevent the utilization of certain products and technologies to support the military-industrial base of the Soviet Union, (2) the need to send the Soviets additional "signals" of U.S. displeasure, and (3) the belief that extending unilateral controls would induce the members of COCOM, and perhaps other Western countries, to adopt similar measures.

AEA believes unilateral controls should be employed very sparingly and only where it can be reasonably determined such controls will have a direct, measurable and intended effect on the target country(ies). This is because there is ample evidence that often the overall impact of unilateral controls is greater on the U.S. than on the intended target country(ies). For example:

1. Most products and technologies not presently subject to COCOM multilateral controls are readily available from any number of COCOM and non COCOM sources. If these countries are not likely to follow the U.S. lead and adopt similar controls, the net effect of the unilateral U.S. export control measures will not be to deprive the Soviets, but rather to channel this and inevitably other future business to all too eager non-U.S. suppliers. This will further separate U.S. businessmen from the

Soviet market, and Eastern European market and further diminish trade contacts which, as a form of communications, may be of some help in perserving peace.

2. Many purchasers located in friendly countries abroad have thriving export buisnesses in which U.S. products play an important part, either as parts, components, or supporting equipment. In recent years, a number of these purchasers have become increasingly concerned at what they perceive to be the never-ending vagaries of U.S. controls--South Africa, Rhodesia, Uganda, human rights, nuclear proliferation, Iran, Communist countries, etc. Many are seriously considering reducing their dependence on U.S. suppliers, not because they believe U.S. controls will be extended over U.S. products they consume locally, but rather because they fear the inevitable U.S. move to extend controls extraterritorially over their re-exports which might place their export business in jeopardy.
3. An increase in controls means more work for exporters in preparing applications and for U.S. licensing officials in handling them. The resultant decrease in the efficiency of the licensing process inevitably spreads over all transactions requiring validated approval. The licensing delays, in turn, tend to divert more business to our competitors abroad, who, not facing similar licensing requirements, can accept orders unequivocally and ship as soon as the material is ready.
4. Past history amply demonstrates that once imposed controls seem to enjoy a life of their own and are very

difficult to terminate. This means that U.S. business is likely to bear the burden of increased paperwork, delays, and loss of business long after conditions have changed and the reason for instituting controls has gone.

The Export Administration Act of 1979 mandates a report from the President to Congress on the economic impact of export controls for foreign policy reasons. This report now consists principally of a compilation of sales lost and the dollar value thereof.

AEA recommends that a more rigorous estimate be made of the economic impact of all unilateral export controls. These should include estimates of the dollar value of license applications not filed because of the existence of controls; of sales lost because of "unreliable supplier" reputation; of follow-up sales lost due to initial denial or non-application; and market share lost because of delays inherent in the requirement for application for a validated license.

We further recommend that, in addition to the Department of Commerce, the Departments of Labor and the Treasury be involved to assess the effects of lost sales on employment and tax revenue.

At the same time efforts should be increased to enforce compliance with multi-lateral agreements by companies in all countries covered by these agreements.

Unilateral Re-Export Controls

The United States, alone among its friends and allies, attempts to control their re-exports of U.S. origin commodities

and technical data. The unilateral controls, not imposed by any other country, hamper the ability of U.S. firms to sell their products abroad. Our COCOM partners in particular find the extra-territorial reach of the U.S. re-export controls unnecessary, discriminatory, and inconsistent in view of their expressed agreement to support the COCOM control system. It seems to AEA that an affective COCOM system will be difficult to maintain if the U.S. continues to assert that it cannot rely on its allies and insists on authority to determine what may be exported from those countries.

Compliance with U.S. unilateral re-export requirements is spotty -- foreign firms frequently ignore them. In fact, U.S. firms and international subsidiaries seem to be the major source of re-export applications. AEA believes these controls should be reduced, especially with respect to those COCOM countries which cooperate most closely with the United States in supporting a uniform system of export controls.

Export Licensing Delays

U.S. businessmen find that long U.S. licensing delays and uncertainties inhibit normal customer relations, tie up expensive inventories, and, ultimately, divert business permanently to foreign competitors who are not so encumbered.

To achieve a continued reduction in the licensing backlog, AEA believes this Subcommittee should look into various institutional factors which, singly and in combination, lead to licensing delays. Some of these are:

1. Lack of affirmative policy direction at the highest government levels to coordinate the disparate views and

opinions held by the various agencies participating in the export control process.

2. Inadequate reductions in the level and scope of controls despite the fact that Western availability of similar products and, for that matter, availability within the Communist countries themselves has changed substantially in recent years. Since 1979 little or no action has been taken to reduce product controls based on this "foreign availability" factor, "indexing" or streamlining via the mandated "Militarily Critical Technologies List".
3. Laborious case-by-case licensing procedures applied to repetitive transactions and the lack of significant additional licensing delegations from other agencies to permit the Department of Commerce to process license applications more quickly.
4. Constant increases in the number and difficulty of new applications as U.S. export and re-export volume expands, and as various products, especially computer systems, increase in complexity.
5. Inability of the licensing agencies, particularly the Department of Commerce, to obtain adequate funding to add qualified licensing personnel required to process applications without delay.
6. Personnel cuts in the licensing agencies, especially the Department of Commerce, along with increased workloads such as those occasioned by the administration of the antiboycott provisions of the Export Administration Act.

7. Archaic paperwork procedures and slow, manual data retrieval processes which waste the time of skilled licensing officers who would be better employed analyzing applications and speeding them through the licensing process.

Export Licensing to Friendly Countries

Well over one third the estimated 71,369 export license applications received by the U.S. Commerce Department this past year were for transactions with our COCOM partners and Australia and New Zealand. Many of these involved products or technologies that are available in these countries. These transactions are almost invariably approved in a short period of time, the exercise being in essence in form not substance.

On the other hand, for years the United States has not required individual validated licenses to export U.S. commodities which are to be consumed in Canada. This arrangement has worked well, and it would seem that it could be selectively extended to some or all of our COCOM partners and possibly to Australia and New Zealand. Extension of the U.S./Canadian relationship would save U.S. exporters the time and expense presently required to prepare many license applications. It would also enable U.S. licensing officers to devote a higher proportion of their attention to truly important cases in more critical areas of the world, and speed handling of these cases.

Export Licensing of Products Containing Microprocessors

The decision as to whether or not a product is subject to individually validated U.S. export licensing has historically

been based on the characteristics of the product and not upon the characteristics of the parts which it contains. For example, microprocessors are licensable if supplied as individual semiconductor components. However, automobiles, washing machines, and a host of other basically nonelectronic products containing microprocessors are not considered licensable. The rationale is that no one is likely to purchase and disassemble an expensive product merely to obtain a microprocessor whose value is only a few dollars.

The U.S. government, however, has been unwilling to extend this rationale to electronic instruments such as those manufactured by AEA members. At this time, the U.S. licensing authorities consider an electronic instrument, which would not otherwise be licensable, to be licensable if it contains a microprocessor.

AEA member companies are using microprocessors in constantly increasing numbers to increase the utility, versatility and reliability of the instruments and other products they manufacture. This has meant a corresponding increase in the number of export license applications, a costly and time consuming activity. AEA believes it is high time for the U.S. government to follow the policies of many other Western governments and drop the requirement for export licensing of electronic instruments containing microprocessors so long as the instruments are not otherwise licensable and the microprocessors are used to facilitate data acquisition or other operational features and cannot be reprogrammed for other use.

Industry/ Government Communication on Export Controls and Enforcement

The Reagan Administration is sensitive to the fact that acquisitions of sophisticated U.S. equipment and U.S. products and technology by the Soviet Union can put our country at a military disadvantage. The Administration has recently taken a number of steps to limit these illegal activities. As it is in the best interest of the U.S. exporting community to comply with the law, the AEA International Committee has recently initiated a program to advise our members of our Government's concerned attention on export controls and assist them in developing a comprehensive body of internal procedures. Export seminars across the country are being held to educate the companies in compliance with export laws. In addition, AEA felt it appropriate and useful to send an "awareness" document to CEO's of AEA member companies illustrating the procedures that may be taken to insure the companies remain in compliance by following these precautionary steps:

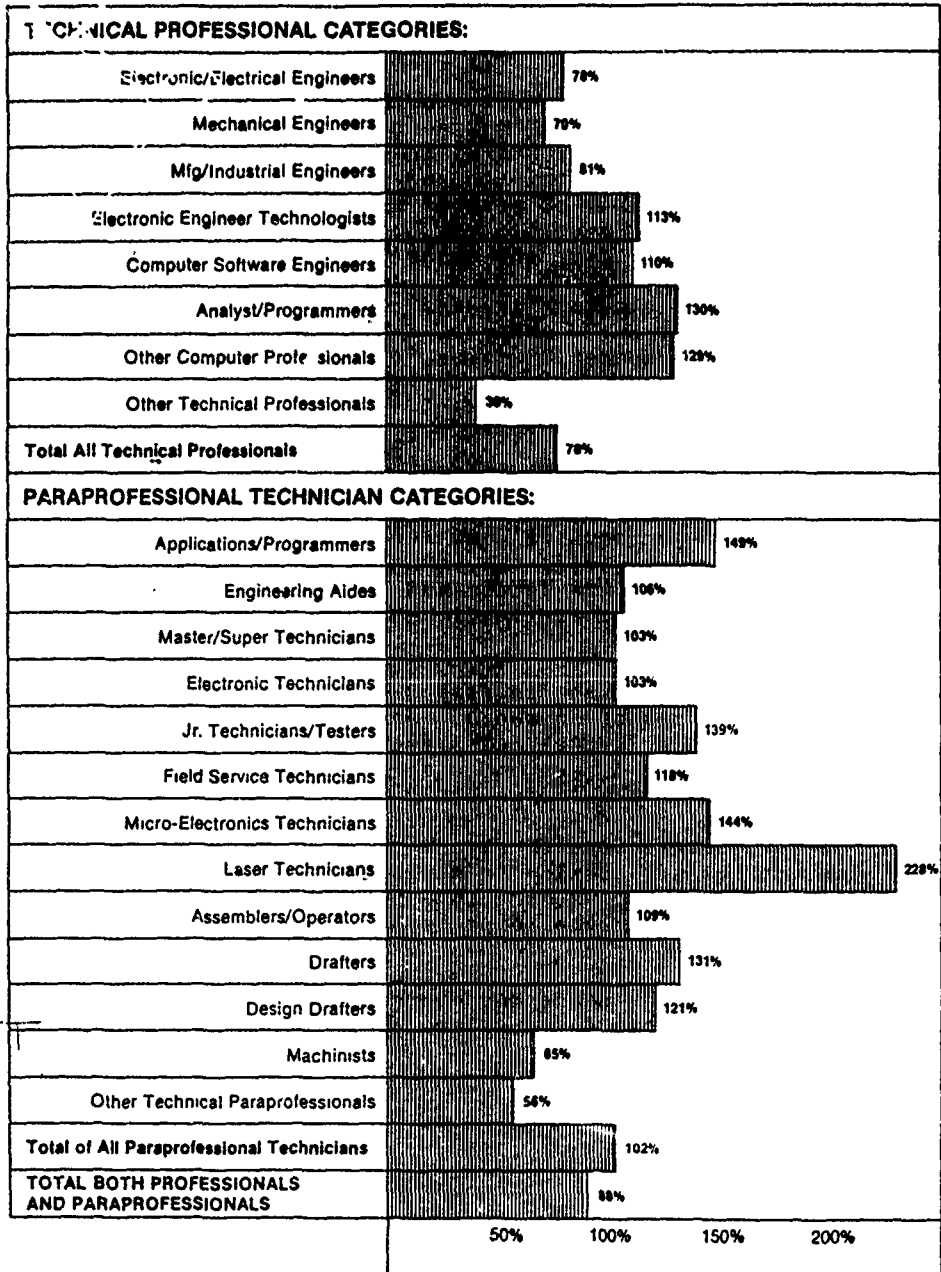
- Identify inquiries and orders for products, parts or technology, including software, which are likely to be shipped outside the United States and seeing that they are handled by export specialists.
- Ensure that their export specialists are sufficiently knowledgeable about export controls and that appropriate screening and licensing procedures are followed.
- Make certain that their employees - whether they live abroad, travel abroad, transmit information abroad, or merely come in contact with foreigners visiting the United States - fully understand that the U.S. Government

restricts the flow of technical data and know-how, whether it be written, oral or visual.

Creation of a better dialogue between business and the government would be a valuable step toward the enforcement of U.S. export control policy. AEA would suggest a two day session between the chief executive officers of the top U.S. firms dealing in sensitive technology and products and the Department of Defense and Intelligence Agencies to discuss the threats to our national security. Sensitizing the business community to the problems of national security and educating the government with firsthand information on business's concerns and how business can assist in the control process would be productive to a mutual end result.

AEA has also initiated a comprehensive review of the Export Administration Regulations to simplify and reduce unnecessary documentation requirements. The results of our review will contribute to a better communication between the exporter and the government, and assist in avoiding inadvertant exports and paperwork.

UNITED STATES: AEA DATA ONLY
Projected Growth as Percentage of Total
1981-1985



(Attached was mailed to the CEO of Member Firms of the American Electronics Association with feature article in the Association Monthly Newspaper)

Dear _____,

Recent disclosures by the CIA and hearings conducted by the Senate Permanent Subcommittee on Investigations have alerted the public to the continuing efforts of the Soviet Union and East Bloc countries to secure sophisticated U.S. equipment, products and technology. A variety of methods used, including purchase in the U.S. for ostensibly domestic use but actually for illegal shipment to the Soviet Union and other unauthorized destinations.

The Reagan administration is sensitive to the fact that these acquisitions, can put our country at a military disadvantage. It has recently taken a number of steps to limit any such illegal activities, for example:

- The U.S. Customs Service has fielded some 200 additional inspectors in an effort, called "Operation Exodus", to monitor U.S. exports more closely.
- The U.S. Department of Commerce is strengthening its compliance activities of communist country nationals in this country and to detect and prevent the clandestine acquisition or diversion of sensitive U.S. goods and technology.
- The FBI and CIA have increased their efforts to monitor the activities of communist country nationals in this country and to detect and prevent the clandestine acquisition or diversion of sensitive U.S. goods and technology.
- The U.S. State Department and other agencies of the U.S. government are seeking to strengthen and enlarge the activities of COCOM, the international body coordinating the strategic control efforts of the NATO countries and Japan

The U.S. government needs the cooperation of U.S. firms in its effort to limit this unauthorized flow of equipment and

technology. It is also in the best interest of all firms to insure they carry out their business activities in full compliance with U.S. export control regulations. These regulations are complex and often difficult to understand, but they must be adhered to conscientiously to avoid time-consuming and costly audits or investigations---to say nothing of lawsuits, fines and even imprisonment---which could result from various types of violations.

AEA's International Committee thinks it worthwhile to make sure that all AEA member firms are aware of the widespread Soviet and East Bloc clandestine activities, the expanded U.S. enforcement response, and the need to examine internal export administration operations to insure full compliance with the control regulations and to assist U.S. enforcement efforts where appropriate.

With cooperation and full compliance in mind, the Committee has compiled detailed comments for your operating people to consider regarding procedures in this area used by some AEA member firms. These comments are provided in full recognition that:

- Some or all of the procedures may already be in place in your firm;
- Some are designed to insure against inadvertant violations of the regulations;
- Some may involve legal consideration and/or may not be appropriate in a given firm but could assist governmental enforcement efforts.

We hope these comments are helpful.

Sincerely,

E.E. Ferrey
President

Enclosure

COMMENTS ON THE CONTROL OF HIGH TECHNOLOGY ELECTRONIC EXPORTS

U.S. businessmen in the high technology electronics industry have three ways to help the U.S. government limit the illegal flow of commercial equipment and technology to unauthorized destinations.

- I. By ensuring that their export specialists are sufficiently knowledgeable about export controls and that appropriate screening and licensing procedures are followed.

In addition to requiring adequate knowledge, many U.S. companies insist their export specialists:

- A. Screen, at the time of receipt, each order the firm is to ship outside the United States so that if a validated export license is required it can be obtained before shipment is scheduled. Orders are also screened at the time of shipment to ensure that the U.S. export regulations have not changed so that a different type of license is now required.
- B. Assist employees carrying samples, demonstration equipment, etc, abroad by obtaining the proper export licensing and export documentation.
- C. Notify in writing at the time of acceptance, all domestic purchasers or those he suspects or knows will export the purchased item(s), whether it will require a validated U.S. export license. Some firms also provide the Schedule B and commodity control list numbers of the various items and repeat in the invoice the need for export licensing.
- D. Receive, before shipment of controlled items to a domestic address, a copy of an appropriate U.S. export license if the purchaser is known or suspected of wishing to see the items shipped outside the U.S. and if his ability to export correctly is unknown or if his integrity seems questionable.
- E. Discuss with the office of Export Compliance, U.S. Department of Commerce, (202)377-4608, any unusual situations or suspected diversions and receive advice prior to shipment.

- II. By making certain that their employees -- whether they live abroad, travel abroad, transmit information abroad, or merely come in contact with foreigners visiting the United States -- fully understand that the U.S. Government restricts the flow of technical data or know-how, whether it be written, oral or visual.

Although the U.S. technical data regulations are complex, the general rule is that the only commercial or educational technical data that can be exported or released abroad without first securing a validated U.S. export license is that which is generally available to the public in the United States. Generally available is defined to mean data released orally or visually at open conferences, lectures, or trade shows, and publications which are available without charge, available at libraries open to the public or available without restriction at normal cost.

An important exception to this general rule permits U.S. firms to conduct most of their commercial business in non-communist areas abroad including training people, transferring software and controlled technology, etc. This exception applies to foreign importers in non-communist countries and Yugoslavia who are covered by a written agreement with a U.S. firm signed either by themselves as individuals or by their non-communist employers stipulating that neither the U.S. technical data nor the direct product thereof, is intended to be shipped directly or indirectly to communist destinations without first having received written authorization from the U.S. Department of Commerce.

This exception does not apply to foreign nationals from communist countries, excluding Yugoslavia. Communist nationals may only be shown commercial equipment and facilities which are freely and generally available in the United States and only published and freely available commercial information may be disclosed -- nothing proprietary or not generally available. Moreover, since the U.S. government is interested in the visits made by communist nationals many firms find it appropriate to secure clearance from the U.S. State Department prior to each visit:

Soviet clearances - (202)632-6442;
 East European clearances (202)632-2721;
 People's Republic of China clearances - (202)632-1004.

III. By identifying inquiries and orders for products, parts, or technology including software, which are likely to be shipped outside the United States and seeing that they are handled by export specialists.

Companies involved in international business, even the smallest, have established or have contact with someone or some group of people who have the specialized knowledge and skill in finance, shipping, export documentation and export control needed to handle international inquiries and orders. The problem is to make sure that these export inquiries and orders are identified by the firm's domestic sales and order processing people and given to the export specialists for handling.

Identification, simple whenever a destination outside the United States is indicated, becomes much more difficult when exportation is not mentioned, or is willfully concealed. For this reason, many U.S. firms find it appropriate to involve their export specialists in the handling of certain inquiries and orders from little known or unknown customers who seem to have no obvious use for either the items or the quantities involved, no suitable facilities in which to use them, or who refuse to identify the actual end user or end use of items. In addition, firms with foreign words or phrases on the letterheads and firms with names including words such as International, Trade, Export, Import, Limited or Ltd. often handle international business. Finally, inquiries and orders with one or more of the following characteristics often indicate destinations outside the United States, even if the customer maintains the items are for domestic use:

- A. Specifying 230V 50Hz, 115V 50Hz, or unusual power cords, plugs, fuses or power line operation.
- B. Requiring special salt spray or humidity packaging, export packaging, and/or export marking.
- C. Requiring export information such as:
 1. Cubic volumes and/or packaged weights, especially in metric terms.
 2. U.S. Government Schedule B and/or export licensing information.
 3. GSA Form 1246 Terms and Conditions and/or other A.I.D documentation.

- 4. Certifications as to country of origin, conformance to international standards or testing requirements, etc.
- D. Requesting direct shipment abroad or delivery to a consignee in the United States known to be an overseas shipper, a freight forwarder, or one who intends to carry the products abroad as part of his effects.
- E. Specifying payment terms involving letters of credit, drafts drawn on foreign buyers, or other specialized banking requirements.
- F. Requesting exemption from state sales taxes, but unable or unwilling to provide a state resale tax identification number.

Mr. BINGHAM. Mr. Lovett.

STATEMENT OF ROBERT S. LOVETT, PLANNING MANAGER, E. I. du PONT de NEMOURS & CO., REPRESENTING THE SCIENTIFIC APPARATUS MAKERS ASSOCIATION

Mr. LOVETT. My name is Robert Lovett. I am planning manager for the analytical instruments and biomedical products division of E. I. du Pont de Nemours & Co., which is headquartered in Wilmington, Del. Du Pont's sales of high technology scientific instruments and electronic products are in the range of \$1 billion per year; approximately one-third of this is in export markets. I am appearing before you this afternoon on behalf of the Scientific Apparatus Makers Association, or SAMA, as we know it.

SAMA is a national trade association representing this country's manufacturers and distributors of a wide range of scientific, industrial, and medical instruments and equipment. Its 180 companies constitute the bulk of American industry producing instruments for laboratory, analytical, electronic test, process measurement, and control.

I would like to express SAMA's thanks for your interest in the international trade and investment problems which confront the high technology electronics sector of the American business community.

FAVORABLE TRADE BALANCE IN INDUSTRY

Mr. Chairman, SAMA's member companies constitute a growing, vital sector of U.S. industry. In the past 2 years, exports of scientific, industrial, and medical equipment from this country increased by almost \$2 billion. In 1981 alone, those products contributed a \$4.6 billion surplus to the U.S. trade balance. While the value of imports for those same products has also increased substantially, the ratio of exports to imports is nearly 3 to 1, and we are not here to request that you close the border. Rather, by supporting reciprocity legislation presently before the Congress, SAMA seeks the opposite result. We welcome the competition at home, provided that our away games are played by the same rules.

Indeed, the continued success of this industry will be highly dependent on actions that the Congress takes in the coming weeks and months, as well as on actions taken by the executive branch. Thus, **Mr. Chairman,** SAMA believes your hearings are very

timely. If our member companies are to be as competitive in the future as they have been in the past, we believe that this country must adopt a consistent overall strategy which will promote free and fair market access abroad.

I probably cannot emphasize enough the importance of also encouraging domestic policies and programs that will insure U.S. technological leadership. Without that, U.S. exports of these key technology-based products will dry up. That would place the United States in serious trouble at home and abroad.

We have elaborated on this general position rather extensively in our written statement which I would request to be inserted in the hearing record.

Mr. BINGHAM. Without objection, so ordered.

Mr. LOVETT. We cover a variety of issues in that statement, but I will focus my oral comments on two areas of particular concern and interest to SAMA member firms: pending trade legislation and a particularly troubling aspect of present U.S. export control regulations.

PENDING TRADE LEGISLATION

First regarding pending trade legislation: We believe that the United States must do all it can to resist protectionism here and abroad. We must work to strengthen the GATT system and extend it to cover foreign investments and services. By enacting appropriate legislation, Congress can provide U.S. negotiators with the necessary policy guidance and statutory backup to overcome trade barriers and open up world markets.

H.R. 6433, the proposed High Technology Trade Act, introduced by Congressman Shannon and others, provides the negotiating mandate required to achieve this objective for our industries. SAMA has strongly endorsed this bill.

The major provisions of the High Technology Trade Act have been incorporated into parts of S. 2094, the Danforth reciprocity bill, which has been reported out of the Senate Finance Committee. SAMA also supports that bill, as presently written without any protectionist amendments. H.R. 6773, introduced by Congressman Frenzel last month, closely resembles the Danforth bill but with the major deletion of tariff-cutting authority. We hope that the Congress, as it considers H.R. 6773, will consider adding reciprocal tariff-cutting authority for high technology products.

PROBLEMS CREATED BY EXPORT CONTROLS

Let me speak now about U.S. export controls and what we might do to improve the situation. For high technology products critical to our national defense, there can be no question about the need for prohibitions to export and the corresponding need to obtain export licenses. I am certain all industry supports this basic principle.

We must not, however, let this basic necessity create procedures and restrictive practices that subsequently restrict our ability to remain responsive and attractive trade partners for nonmilitary products that no longer contain secret technology. Industry accepts its fundamental responsibility to protect technology that is key to

our national defense and well-being. Once, however, a product or technology is in the U.S. public domain, it is reasonable to assume the technology soon will cross international borders and be available for use by our adversaries. By long restricting export of such products that are in the U.S. public domain, we simply insure markets for foreign competitors.

The consequence is that the United States loses the business opportunity, creates competition, strengthens foreign sources, and weakens our industrial base for defense. The United States should capitalize on its new technological products and insure maximum export sales during that period when offshore competition might be consumed in copying or catching up with the technology involved.

EXPORT LICENSES FOR MICROPROCESSORS

Export licensing requirements for instruments containing microprocessors are a prime example. In instruments like those produced by SAMA members, microprocessors manage and carry out a series of operations within the machine. They are like a little control switch. Use of these components places instruments under commodity control list classification 4529B, requiring a validated license for export to most locations. At the same time, foreign designed and manufactured products, some of which even use U.S. microprocessors, are sold throughout the world in competition with U.S. instruments, but without similar regulatory impositions, delays and expense.

You are aware that other products which use microprocessors in similar functions, including such common trade items as automobiles and washing machines, are not subjected to such controls.

The Commerce Department is not unaware of this problem. In fact, Commerce has been working to achieve Defense Department approval for some resolution of our concern. We note, however, that SAMA identified this problem to your subcommittee when we appeared here in 1979, and a solution continues to elude the regulators. Since that time, the United States has needlessly exported sales opportunities and, ultimately, American jobs when we would much prefer to be sending over our goods.

We believe that it is high time that the U.S. Government follow policies of other Western countries in dropping requirements for a license for instruments containing these embedded microprocessors, so long as, first, the instrument is not otherwise licensable, second, the microprocessors are used to facilitate data acquisition or other operational features, and third, the associated circuits are dedicated to their function and cannot be reprogramed for other use.

PRIVATE SECTOR COMPLIANCE ASSISTANCE

Your attention, and that of the Commerce and Defense Departments, are needed if we are to create practical and workable approaches to export control. SAMA believes also that the private sector can help. U.S. businessmen can assist the Government compliance effort by insuring that the export of sensitive products is handled by properly trained specialists.

Exporting companies must also make certain that their representatives who travel abroad are sensitive to U.S. efforts to control technical data and know-how, in addition to physical products. SAMA is assisting in this area by alerting its member companies to these matters.

Perhaps more constructively, SAMA would support the formation of a high level export working group composed of industrial and Government leaders to tackle export problems and generate workable control concepts. Through an ongoing and in-depth dialog between appropriately cleared business leaders and senior Government policymakers, there could be candid discussions of the military and commercial impact of new technologies and realistic timetables could be set for release of hardware and products at rates commensurate with the ability of foreign competition. Further specifics on such a program are contained on pages 20 and 21 of SAMA's prepared statement.

In conclusion, Mr. Chairman, I have tried to highlight in my testimony two of the most important trade matters concerning SAMA companies. To summarize, we believe:

First, that legislation such as S. 2094, H.R. 6433, and H.R. 6773 to provide a negotiating mandate for high technology trade objectives can be a positive force in opening up world markets to U.S. technology goods and services.

Second, export controls are appropriate and necessary, but must be carefully updated on a timely basis. We believe that a high level industry-government working group can be effective to that end, to pinpoint technologies of special concern, to formulate release schedules for new technology products, and to encourage consistent, self-policing practices in industry.

Thank you for the opportunity to appear before you this afternoon. I shall be happy to respond to any questions you might have.

Mr. BINGHAM. Thank you, Mr. Lovett.

[Mr. Lovett's prepared statement follows:]

PREPARED STATEMENT OF ROBERT S. LOVETT, E. I. DU PONT DE NEMOURS & CO. ON
BEHALF OF THE SCIENTIFIC APPARATUS MAKERS ASSOCIATION

Mr. Chairman and Members of the Subcommittee:

My name is Robert Lovett, and I am Planning Manager for the Analytical Instruments and Biomedical Products Division of E. I. du Pont de Nemours and Company, which is headquartered in Wilmington, Delaware.

Du Pont sells in the range of one billion dollars annually of high technology scientific instruments and electronic products; approximately one-third of that total is in export markets. International trade is vital to the health of our business.

I am appearing before you today on behalf of the Scientific Apparatus Makers Association (SAMA).

SAMA is a national trade association representing this country's manufacturers and distributors of a wide range of scientific, industrial and medical instruments and equipment. The 180 companies who are SAMA members, many of small or moderate size, constitute the bulk of American industry producing research laboratory, analytical, electronic test and measurement, and process measurement and control instruments, as well as clinical laboratory instruments, patient monitoring instruments, and a wide range of laboratory apparatus and equipment.

I'd like to begin by expressing my thanks, and the appreciation of SAMA for the continuing interest of the Subcommittee, in the international trade and investment problems which confront the high technology electronics sector of the American business community.

I am confident that the high technology electronics industries represented here today constitute some of the strongest positive contributors to the U.S. balance of trade. The other associations participating on this panel will describe their own contributions. Let me spend a moment describing those of SAMA.

As can be seen from Table 1, from 1979 through 1981, U.S. exports of scientific, industrial and medical instruments and equipment increased by almost \$2 billion. Exports in 1979 amounted to \$5.33 billion, while in 1981 exports increased to \$7.30 billion. That is a 37 percent rise over the two year period.

It should also be noted that imports of instruments and other equipment and apparatus also increased, 36 percent over the same two year period. The ratio of exports to imports, however, remains very high - almost three to one. Most significantly, the industry which SAMA represents contributed a surplus of over \$4.6 billion to the U.S. trade balance in 1981, up from \$4.2 billion in 1980.

Despite a recent softening in international markets, SAMA is not coming before the Congress with hat in hand. We expect to have continued success in our ability to compete abroad.

The degree of success, however, will be highly dependent on actions that the Congress takes in the coming months as well as actions taken by the Executive Branch in determining the environment within which trade is transacted. It is in this context that SAMA believes these hearings are very timely. If SAMA member companies are to be as competitive in the future as they have been in the past, we believe this country must adopt a consistent overall policy which will:

1. Promote free and fair market access abroad,
and
2. Build effective long range economic policies to
stimulate and maintain U.S. technological leadership.

Given this framework, let me express SAMA's views on some of the specific needs - both present and future - which we believe must be addressed by the Congress and the Executive Branch in this and coming years.

EXPORT LEGISLATION PRESENTLY BEFORE THE CONGRESS

SAMA has analyzed carefully a number of bills introduced by members of the Congress designed to generally revise U.S. trade policy to ensure free and fair trade. We believe that the U.S. must do all it can to resist protectionism here and abroad by working to shore up the GATT system and to expand that system of international rules to cover foreign investment and services. By initiating and passing appropriate legislation, Congress can provide our negotiators with the policy guidance and statutory backup they need to succeed in lowering trade barriers which remain, and opening up expanded world markets for U.S. products.

H.R. 6433, the proposed "High Technology Trade Act", provides the negotiating mandate required to achieve this objective for U.S. high technology firms. The legislation accomplishes three main purposes:

1. It provides a mandate for major new international negotiations to open foreign markets for U.S. high technology trade and investment, as well as the means for the U.S. to implement its side of any agreement.
2. It provides a method for dealing with foreign measures, particularly industrial policies which distort international high technology trade and investment.

3. It permits the discretionary application of U.S. legal remedies whenever negotiated solutions prove impossible.

This legislation is clearly designed to encourage reciprocal elimination of barriers in a broadly based product sector of crucial importance to our trading future as a nation. It avoids the pitfalls of bilateral trade balancing which plague other sectoral initiatives and have given the term "reciprocity" an undeserved protectionist ring.

The major provisions of the High Technology Trade Act have been incorporated into Sections 5 and 8 of S. 2094 which has been reported favorably out of the Senate Finance Committee. SAMA supports S. 2094, as well as H.R. 6773 recently introduced by Mr. Frenzel. This latter bill closely resembles S. 2094, with the major exception of the tariff cutting authority presently contained in S. 2094. We hope that the Congress, as it considers the provisions of H.R. 6773, will also consider adding reciprocal tariff cutting authority for high technology products.

It is most significant, in our view, with respect to each of these bills that, for the first time in U.S. trade legislation, recognition is given to the high technology sector of

American industry. It is essential for this sector to be truly competitive in world markets to provide and create jobs, to contribute to a favorable balance of trade, and to maintain and strengthen an industrial base capable of developing and producing advanced military defense systems. We welcome Congressional recognition of its significance to our national well-being, and we urge enactment of these concepts into the trade law of this country.

Another bill of particular interest to U.S. high technology exporters is slowly working its way through the Congress. I am referring to the amendments to the Foreign Corrupt Practices Act which have passed the Senate and are now in the House. We do not take issue with the philosophy of the Act. The amendments, we believe, will assist all U.S. exporters by eliminating ambiguities, by clarifying definitions, and by permitting a reduction in some expensive and time consuming record keeping requirements. We support their passage, free of changes that would dilute their effectiveness.

U.S. EXPORT DISINCENTIVES: EXPORT CONTROLS

A major export disincentive confronting SAMA member companies is the administration and implementation of U.S. export control policy.

Export controls, although necessary for our national security, economic well-being, and as an expression of our foreign policy, in their present form often discourage U.S. businessmen and place them at a competitive disadvantage. SAMA believes there are several specific areas that need attention. In describing these areas, SAMA has tried to make constructive suggestions which could lead to reduction or elimination of headaches. We believe action is essential, particularly at this time when our country badly needs an improved trade balance.

Export Licensing to Friendly Countries

In its Report to the Congress of May 26, 1982, the General Accounting Office (GAO) noted that licensing requirements for high technology exports to COCOM countries appear to be excessive considering that:

- In light of COCOM controls vis-a-vis outsiders, some member countries do not require export licenses for high technology exports to other COCOM members.

- The government denied only six high technology export licenses to COCOM countries over the past 3 years, and in each case the denial was made because the U.S. exporter was already restricted from further exporting.
- There is a precedent in the lack of license requirements as to U.S. exports of high technology goods to Canada.

For years, the United States and Canada have had a special relationship whereby validated licenses are not required to export most U.S. commodities which are to be consumed in Canada. This arrangement has worked well, and argues for extension to some or all of our COCOM partners, and possibly to Australia and New Zealand. Extension of the U.S./Canadian approach would save U.S. exporters the time and expense presently required to prepare many license applications, an exporter cost estimated by the GAO to be in excess of \$6 million a year. It would also save the government an estimated \$1 million a year by eliminating some 25,000 applications per year, or over one-third of the total number of applications submitted last year. This would enable U.S. licensing officers to focus on truly important cases in more critical areas of the world.

Export Licensing of Products Containing Microprocessors

The decision as to whether or not a product is subject to individually validated U.S. export licensing has historically been based on the characteristics of the product and not upon the characteristics of the parts which it contains. For example, microprocessors are licensable if supplied as individual semiconductor components. However, automobiles, washing machines, and a host of other basically nonelectronic products containing microprocessors are not considered licensable. The rationale is that no one is likely to purchase and disassemble an expensive product merely to obtain a microprocessor whose value is only a few dollars. We need to extend this practical approach to other product areas.

The U.S. Government, however, has been unwilling to extend this rationale to electronic instruments such as those manufactured by SAMA members. At this time, the U.S. licensing authorities generally consider an electronic instrument, which would not otherwise require a license, to require one if the instrument contains a microprocessor.

SAMA member companies are using microprocessors in constantly increasing numbers in the instruments and other products they manufacture because of their utility, versatility

and reliability. This has resulted in a corresponding increase in the number of export license applications filed with the Department of Commerce. The applications are filed, reviewed by interested agencies and routinely approved after a period of three to eight weeks. To give you some idea of the magnitude of this paper shuffling process, SAMA asked several of its member companies to review the annual number of license applications submitted for products falling within Commodity Control 4529B (the category which catches most SAMA member company products impacted by the embedded microprocessor issue). The results of this informal survey are as follows:

YEAR 1981				
	Country Group	Total Number Licenses		Total Millions of Dollars
		Approv.	Denied	Licenses Approved
Company A	Free World(*)	160	0	\$ 5,000,000.
	China (PRC)	82	0	2,900,000.
	East Bloc	68	0	2,400,000.
	USSR	<u>12</u>	<u>0</u>	<u>420,000.</u>
	TOTAL	322	0	\$10,720,000.
NOTE (*)	It is estimated that an additional 2,400 license applications valued at \$60,000,000.00 would have been processed in 1981 for Free World countries if Company A did not have the use of a Distribution License.			
Company B	Free World	62	0	\$ 1,000,000.
	China (PRC)	0	0	0
	East Bloc	<u>10</u>	<u>0</u>	<u>640,000.</u>
	TOTAL	72	0	\$ 1,640,000.
Company C	Free World	173	0	\$ 1,038,600.
	China (PRC)	18	0	437,500.
	USSR	<u>9</u>	<u>0</u>	<u>287,300.</u>
	TOTAL	200	0	\$ 1,763,400.

These figures illustrate that, for these three typical SAMA companies, all licenses were approved.

When SAMA appeared before the Subcommittee on March 26, 1979, Mr. Edward Best, SAMA's witness said, in part:

"More and more of our products are covered by validated license requirements for little good reason. We have seen the tremendous growth of license applications from exporters, our industry prominently included.

What makes this so is the widespread incorporation of microprocessors. If these components were not used, licenses would not be required for the products themselves. I might also note that our export market for these products would be significantly reduced if microprocessors were not included.

I would like to point out to you that foreign-designed and manufactured products utilizing U.S. microprocessors are sold throughout the world in competition with U.S. instrument manufacturers. Through personal experience, I know that our competitors in several COCOM countries are not subjected by their governments to the delays and expense that we are in dealing with our government, nor are their customers or distributors bothered by re-export requirements..."

Unfortunately, the situation is more onerous today than it was in 1979, as microprocessor applications proliferate. In our own experience, we find that instruments containing microprocessors are still tightly controlled for export by the U.S. long after the microprocessors themselves have become readily available worldwide. Clearly, the technology of this industry is evolving faster than the applicable export regulations.

It is heartening that the Department of Commerce has initiated an effort to focus squarely on this problem. The Department has solicited SAMA's assistance to provide additional technical expertise in an effort to find an agreement within the government on how to deal with the problem of instrumentation containing embedded microprocessors.

SAMA believes it is high time for the U.S. government to follow the policies of many other Western governments and drop the requirement for export licensing of electronic instruments containing microprocessors so long as (1) the instruments are not otherwise licensable, (2) the microprocessors are used to facilitate data acquisition or other operational features, and (3) the microprocessors are in circuits that are "dedicated" to their function and cannot be reprogrammed for other use.

Unilateral Export Controls

U.S. businessmen are concerned that the tense international situation, vis-a-vis the Soviet Union, and the growing concern in the Department of Defense over transfers of militarily valuable technology may lead to the imposition of a number of additional unilateral licensing controls. Presumably, the rationale for extending U.S. unilateral controls would be: (1) to prevent the utilization of certain products and technologies to support the military-industrial base of the Soviet Union, (2) to send the Soviets additional "signals" of U.S. displeasure, and (3) the belief that extending unilateral controls will induce the members of COCOM and perhaps other Western countries, to adopt similar measures.

SAMA believes that unilateral controls should be employed very sparingly and only where it can be reasonably determined that such controls will have a direct measurable effect on the target country(ies). This is because there is ample evidence that the actual effect of unilateral controls is far different from that which was intended. For example:

1. Most products and technologies controlled by the U.S. but not presently subject to COCOM controls are readily available from any number of non-U.S. sources.

The net effect of the unilateral U.S. export control measures will not be to deprive the Soviets, but rather to cede this and related markets to appreciative non-U.S. suppliers.

2. Many purchasers located in friendly countries abroad have thriving export businesses in which U.S. products play an important part, either as parts and components or as supporting equipment. In recent years, a number of these purchasers have become increasingly alarmed at what they perceive to be never-ending vagaries of U.S. controls - South Africa, Rhodesia, Uganda, human rights, nuclear proliferation, Iran, etc. Many are seriously considering reducing their dependence on U.S. suppliers, not so much out of concern that U.S. controls may be extended over U.S. products they consume locally, but because they fear the inevitable U.S. wish to extend controls extraterritorially over re-exports which might place their export business in jeopardy. The U.S. is alone among its friends and allies in attempting to control such re-exports unilaterally. SAMA believes that unilateral re-export controls - if necessary at all - should be confined to the essential and reviewed for their effectiveness in impacting primarily the targeted end countries.

3. An increase in controls means more work for exporters in preparing applications and for U.S. licensing officials in handling them, and time lags become inevitable. Such delays, in turn, tend to divert business to our competitors abroad, who, not facing similar licensing requirements, can accept orders unequivocally and ship as soon as the material is ready.
4. Past history amply demonstrates that, once imposed, controls seem to enjoy a life of their own and are very difficult to terminate. In those cases, U.S. business bears the burden of increased paperwork, delays, and loss of business long after conditions have changed and the reason for instituting controls has gone.

Export Licensing Approval Times

U.S. businessmen find that long U.S. licensing approval time inhibits normal customer relations, ties up extensive inventories, and, ultimately, diverts business permanently to foreign competitors who are not so encumbered.

These delays, serious in any transaction, are especially onerous in dealing with the Eastern Bloc countries where

U.S. suppliers already face several built-in disadvantages. Some of the disadvantages are: lack of familiarity with the market; easier credit available from competitors; remoteness, with attendant long shipping intervals; and the unwillingness or inability of U.S. firms to accept countertrade merchandise from the Communist countries in payment for U.S. goods.

SAMA is gratified that the current administration has recognized the need for more rapid decisions and reduced the licensing backlog from over 2,000 cases to a handful of 30 or so last year. We hope that the effort required on the part of all in the licensing chain to achieve this reduction will be continued to prevent the backlog from building up again. In that connection, implementation of the foregoing SAMA recommendations will significantly relieve the current pressure of application volume on the Department.

In addition, SAMA believes careful attention should be given to various other institutional factors which, singly and in combination, lead to unnecessary licensing delays. Some of these are:

1. Lack of affirmative policy direction at the highest government levels to coordinate the disparate views and opinions of the various

agencies participating in the export control process.

2. Inadequate recognition that Western - and, indeed, Communist Bloc - availability of similar products has changed substantially in recent years. Controls must evolve with the technology of the regulated industry.
3. Laborious case-by-case licensing procedures applied to repetitive transactions and the lack of significant additional licensing delegations from other agencies to permit the Department of Commerce to process license applications more quickly.
4. Increasing complexity of the regulated devices requires longer study of license applications.
5. Inability of the licensing agencies, particularly the Department of Commerce, to obtain needed funding to add qualified licensing personnel in sophisticated technological areas.
6. Archaic paperwork procedures and slow, manual data retrieval processes which waste the time of

skilled licensing officers who would be better employed analyzing applications and speeding them through the licensing process.

In this regard, we have read with interest the recommendation of the General Accounting Office in its May 26, 1982, Report on Export Controls that the Department of Defense, not the Department of Commerce, conduct the preliminary review of those export/license applications which require a determination that the export will make a significant contribution to an adversary's military capability. GAO believes that this reversal of procedure for those cases which Commerce would normally refer to DOD anyway would save 30 days in the processing of these applications, and reduce the staff load in the Department of Commerce. SAMA has some serious questions on this proposal, but has not had an opportunity to come to a formal recommendation on the position taken by the General Accounting Office. We do believe it merits careful consideration.

Compliance

As the Subcommittee is well aware, recent disclosures by the CIA and hearings conducted by the Senate Permanent Subcommittee on Investigations have focused attention on

the continuing efforts of the Soviet Union and other countries of the Warsaw Pact nations to secure sophisticated U.S. equipment and U.S. products and technology, ostensibly for use in the United States or friendly countries but actually for illegal shipment to unauthorized destinations.

The Administration is sensitive to the fact that these acquisitions, which the Soviets gain so cheaply, can put our country at a military disadvantage. The Administration has recently taken a number of steps to limit any such illegal activities; for example: Operation Exodus; Commerce Department organizational changes in the compliance area, and addition of branch compliance offices; and increased surveillance of Soviet Bloc nationals in the U.S. by appropriate agencies.

SAMA believes that the private sector shares responsibility for effective export control policy. In this context, there are several things which the U.S. exporters and the government can do cooperatively to insure the U.S. interests.

U.S. businessman can assist the export control compliance program by taking the following actions:

1. Identifying inquiries and orders for products, parts, or technology, including software, which are likely to be shipped outside the United States and seeing that they are handled by export specialists.
2. Ensuring that their export specialists are sufficiently knowledgeable about export controls and that appropriate screening and licensing procedures are followed.
3. Making certain that their employees - whether they live abroad, travel abroad, transmit information abroad, or merely come in contact with foreigners visiting the United States - fully understand that the U.S. government restricts the flow of technical data and know-how, whether it be written, oral, or visual.

SAMA's Export Administration Act Task Group has compiled some detailed comments on each of these three areas, which are being mailed to all SAMA companies. A copy is attached to this testimony for the Subcommittee's information.

An important action which we think should be taken immediately is to improve the dialogue between leaders in the business

community and those in the government responsible for design and implementation of U.S. export control policy. Specifically, SAMA recommends that a meeting, with appropriate security clearance, be held between high-level members of the public and private sectors to discuss candidly creation of a workable national security-related compliance system.

SAMA would support a standing committee of such high-level business-government representatives which could be expected to hammer out workable, practical procedures to exclude export of key products and components and to manage decontrol at a pace consistent with technological advances here and abroad. Key members of the business community would be further sensitized to central problems of national security, and as active participants in the process, could be expected to provide constructive support in the execution of related discussions and policies. The government members, for their part, would gain a firsthand impression of business concerns, the state-of-the-art in the commercial sector, and the actual extent to which business can assist in the control process. SAMA would be pleased to assist in organizing such an effort.

DOMESTIC INTERNATIONAL SALES CORPORATION (DISC)

It is the view of SAMA that the recent furor over DISC has more to do with the international politics of steel than the legitimacy of tax deferrals. It seems clear, however, that the controversy will not soon abate. Thus, we wish to comment on the use that SAMA member firms make of DISC, so that the importance of DISC, or some similar substitute, may be brought home to the Subcommittee.

Within SAMA member companies, DISC is presently widely and successfully employed. Large, medium and small firms, those who manufacture only in this country and those with extensive sales and manufacturing activities abroad, have found that the DISC incentives have convinced their managements of the importance of exports, thus enabling them to compete abroad on more equal terms against tough, subsidized foreign competitors.

The experience of three high technology companies clearly indicates that DISC has provided an important export stimulus.

For example, a small SAMA firm in the Northeastern part of this country exports about 35 percent of its sales volume of about \$14 million per year. In an area plagued with

chronically high unemployment, the company's export business provides jobs to 100 of its 360 employees. Without DISC, given the added costs of international marketing, the firm believes much of its export activities would become unprofitable and thus be subject to discontinuance.

In another, somewhat larger SAMA firm in the Northeast, slightly more than 30 percent of annual sales of \$70 million are exported. The employment of 400 persons in a workforce of about 1,500 is directly related to these export sales, for which DISC provides a major incentive.

Yet another, even larger SAMA firm in that same region, has used the DISC tax provisions to increase its exports. The firm now employs over 6,000 people in this country. Technical innovations and skilled craftsmanship have enabled it to become one of the world leaders in its field. Exports have played a large role in the company's business since 1920.

The following account, from the firm's management, summarizes the way in which our members view the benefits associated with DISC.

"...During the 1960's the combination of dollar parities foreign technical innovations, rising U.S. labor rates, and export incentives offered by certain foreign governments

caused a serious leveling of our export business. In 1968, as a result of sales reductions and reduced earnings, this firm suffered our first major layoff.

Then came legislation enabling the formation of DISC. It was found that the DISC benefits help to defray the increased costs associated with export business and allow users to maintain identical net pricing in export and domestic transactions. The competitiveness of these prices has enabled the firm to expand exports very significantly, consequently increasing employment in the U.S. Management is convinced that if there had been no DISC, our U.S. employment today would be somewhere between 5 and 10 percent less than it is today. Tax relief, such as that provided by DISC, is important to the company and its employees, as well as to shareholders. Export business is very important - it increases our manufacturing base, improves overall production efficiency and, as a result, reduces the need for price increases. Without DISC, or some other form of export incentive, we would surely find it necessary to increase our export prices and as a result, see our export sales and local employment seriously reduced."

As an incentive, DISC has worked to expand the level of exports in recent years. SAMA member firms believe DISC,

or something very similar, should be retained to promote exports and help U.S. employment.

We are aware and concerned over the Congress's recent actions to cut back DISC benefits by 15 percent. This year our association, like other industry groups, has taken the view that it should not oppose all tax increases that adversely impacted SAMA member companies. Thus, while we strongly oppose the total repeal of DISC, we did not lobby against the 15 percent reduction of DISC benefits, even though this is one of the areas that hits high technology companies hard. We are concerned, however, over any further erosion of DISC, and we are equally concerned over the nature of any replacement for DISC which may be considered by the Congress in the coming months.

"Alternatives" to DISC

Having said this, let me make a few observations about certain suggestions we have heard in the past few months about possible "GATT-safe" alternatives to DISC. In brief, we are deeply concerned about the operating difficulties which would attend enactment of some of these alternative concepts.

From an operating point of view, one of the benefits of a DISC is its invisibility so far as foreign purchasers and

others in the distribution chain - banks, freight forwarders, insurance companies, air and ocean carriers, etc. - are concerned. In contrast for example, a Foreign International Sales Corporation (FISC) as has been proposed, has high visibility which may confuse and alienate foreign customers and could cause unnecessary complications for others in the distribution chain. Interposing a separate corporate entity between any company and its customers could be a costly and frustrating experience, and could result in the loss of some customers, who, becoming disgusted, decide to do business with firms who were not so determined to make life complicated for them.

Another beauty of the DISC from an operating viewpoint is that physical substance is not required. In contrast, a FISC requires a physical entity. Some forms of this substance - providing separate stationery and forms, keeping a separate set of books, etc. - are simply a nuisance and an added expense. Others are more complicated; for example, transferring people into the FISC while ensuring that all of their benefits continue unaffected

SAMA has raised these and similar operating problems in

the DISC discussions. It is easy to underestimate the importance of these problems if one does not have to face them repeatedly in daily business transactions. I have no doubt that large firms could modify their activities to operate a FISC or some similar creation - although not without significant expense and consequent sacrifice of sales. Small - or even medium-sized firms, however, such as many of those represented by SAMA would not be able to do this and, for that matter, might be inclined to opt out of the export market rather than try to meet the requirements of such an "incentive."

RESEARCH AND DEVELOPMENT

The statistics on the deteriorating overall U.S. trade balance in recent years have made it obvious, painfully so to some, that we live in an interdependent world that is growing and advancing around us both economically and technologically. The realization of such a world is, in fact, an objective long sought by this nation.

SAMA believes substantial reductions in the amount of U.S. investment in research and development have been a prime cause of the deteriorating competitive position of U.S. business in world markets. U.S. expenditures for R&D since 1960 have declined in both real and relative terms.

When measured as a percent of GNP, U.S. R&D expenditures dropped from a peak of 2.95 percent in 1964 to 2.22 percent in 1979, a decline of almost 25 percent. (See Table 6.) A number of complex and inter-related factors can be seen as the causes for this decline, among them: the constantly increasing cost of money, the escalating size of investment required to reach meaningful results, the risk factors in our unstable economy, etc. These have reduced the ability of U.S. business to fund research and development activities to the level needed to maintain our competitive position relative to our trading partners.

The need is to focus more of this nation's resources on R&D - the key which in the past has opened the door to the unparalleled success of U.S. industries, at home and abroad. There is ample evidence of a significant link between an industry's commitment to R&D and its growth in both domestic and export markets. For example, Table 7 dramatically indicates that manufacturing industries classified as R&D-intensive, have had a rapidly accelerating trade balance, while non-R&D-intensive industries have produced an equally accelerating negative balance of trade.

According to a 1980 SAMA survey (Table 8), its members on the average spend one and a half times as much on R&D as they do on new plants and equipment - a decided contrast to

usual industry practice where capital expenditures constitute the major company investments. Some SAMA member companies spend seven to eight times more on R&D than on capital equipment - and this at a time when the industry's need for greater investment in plants and equipment is expanding dramatically.

On average, SAMA members spend an amount equivalent to about 87 percent of their after-tax profits on R&D.

Of the total amount devoted to research and development by those surveyed - an annual average of greater than \$5.5 million per company - 86 percent is devoted to applied product development and 14 percent to research.

SAMA has vigorously supported a number of tax changes designed to stimulate research and development. Several of these measures were enacted by the Congress in the Economic Recovery Tax Act (ERTA) of 1981. These include:

1. A 25 percent tax credit for increase in R&D spending over the average of the three previous years;
2. Inclusion in the tax credit of 65 percent of a corporation's research grants to universities.
3. Assignment, under the accelerated cost recovery

provisions, of R&D equipment to the three-year category, and

4. Permission, over a two-year period, for U.S. corporations to allocate all U.S. incurred R&D expenses to U.S. source income.

We strongly oppose any changes in these areas this year, and we are pleased that the Congress and the Administration did not modify these provisions of the tax code. The R&D credits are only just beginning to work, and the available data says the credits are working. Results of a SAMA survey show that ERTA will cause 86 percent of responding companies to increase their R&D activities. In fact, over one-half of the responding companies expect to increase R&D expenditures beyond forecast in 1982, despite the prevalence of the current recession.

A McGraw-Hill survey for 1982 indicated that companies will spend substantially increased amounts on R&D in 1982 (up 17 percent from 1981), even after taking into account the effects of inflation. Even more importantly, this survey and other data indicate that corporate investments in R&D are increasing as a percentage of sales. This means that companies are changing their priorities towards spending a higher proportion of total available funds on R&D. The essence of

R&D requires substantial effort, however, and we applaud the restraint of the government in not demanding an instant fix to the longstanding productivity problem.

As valuable as these changes in the treatment of research and development are, SAMA believes more can be done to further stimulate the process of innovation - and the international competitiveness - in the U.S. Specifically, SAMA notes the following:

1. ERTA established a twenty-five percent tax credit for certain research and experimental expenditures to the extent that current year expenditures exceed the average amount of such expenditures during a base period. This provision will expire on December 31, 1985. While SAMA applauds last year's action to stimulate R&D, we are concerned over its temporary nature. In our view, there can be no more important national objective than restoring our commitment to increased levels of R&D activity. Our levels of research and development expenditures have fallen way behind those of Japan and West Germany, and as a result, we are losing world markets and U.S. jobs to foreign competition. A firm commitment to expanding research and development efforts is needed, and we hope that the Congress will make

such a commitment by eliminating the termination provision of ERTA for the R&D tax credits.

2. ERTA suspended for a two-year period Treasury Regulation 1.861-8 as it applied to the allocation of domestic R&D expense to foreign source income. As explained earlier, high technology companies have been in the forefront of U.S. export activity. Such companies are often required to establish sales and service operations abroad in order to expand and support their exports. Such operations are naturally taxable by the host government. Normally such taxes are creditable in the U.S., but where a foreign operation makes use of technology from the U.S. in order to further U.S. exports, Regulation 1.861-8 would operate to deny tax creditability. The two-year suspension should be made permanent.
3. ERTA, as enacted, provided an R&D credit for qualified expenditures in excess of base period expenditures. Qualified research expenditures include amounts paid for basic research by colleges and universities. Legislation approved by the House Ways and Means Committee last year exempted such expenditures from the base period calculations on the grounds that a revitalization of university/

industry cooperation in basic research was needed, and all possible incentives should be given to accomplish this objective. That concept is still valid, perhaps more so today than a year ago, and SAMA believes Congress should remove the requirement to include Section 44F(e) expenditures in the base period computations.

4. ERTA also provided a special deduction for charitable contributions of scientific property used for research by colleges and universities. However, new Code Section 170(e)(4) is limited to contributions of new equipment. We believe our country's technological health would benefit if industry were also encouraged to donate depreciated production and laboratory assets, along with new equipment. Thus, Congress should expand Section 170(e)(4) to allow a deduction for the fair market value of Section 1231 assets donated to colleges and universities for use in research.

We believe these actions would have a very favorable overall economic impact in the future, and we hope that serious consideration will be given to each of these proposals in the coming months.

CONCLUSION

In conclusion, we have tried to highlight in this testimony certain of the most important trade matters facing SAMA. To summarize, we believe:

1. That certain "Reciprocity" bills such as S.2094, H.R. 6433, and H.R. 6773 can be a positive force in opening up world markets to U.S. goods and should be supported. We are gratified that high technology industries have been identified as an area for special negotiations.
2. That export controls are appropriate and necessary, but must be carefully updated on a timely basis. Specifically, we believe that (a) treating COCOM countries for licensing as the U.S. treats Canada would permit concentrating licensing effort on more significant problems; (b) unilateral controls should be involved only in extreme circumstances, since they have many undesirable consequences; (c) electronic instruments should not require licensing solely because they contain microprocessors; and (d) the difficulty of enforcing re-export restrictions should be recognized. We further believe that a high level industry-government partnership can be formed that can create licensing

policies, pinpoint high technology areas of special concern, and generate means for some measure of self-policing to complement licensing.

3. That DISC is a very important export incentive for SAMA member firms. Alternatives have been suggested, but involve serious practical difficulties. SAMA favors retention of the DISC, or some other system that preserves its simplicity.
4. That R&D is the seed corn of American industrial leadership in the world and is essential to our competitive survival internationally. Incentives to promote research and development are crucial and must be maintained throughout the economic cycle.

Others on the panel will discuss a number of long-term negotiating objectives for the U.S. government to establish with respect to future dealings with our trading partners. What I have attempted to do is focus on several areas in which SAMA believes that you, as members of the Congress, can assist U.S. high technology firms in their continuing efforts to innovate, to increase their productivity, and to best foreign competition. Thank you for your time and interest.

STATISTICAL APPENDIX

Table 1	U.S. Trade of Scientific, Industrial, and Medical Instruments and Equipment (in millions of dollars): Exports, Imports, 1979, 1980, 1981
Table 2	Percent Distribution of 1981 Exports of Scientific, Industrial, and Medical Instruments and Equipment by Major Regions and Selected Countries
Table 3	1980/1981 Percent Changes in U.S. Exports of Instruments and Supplies by Major Product to Major Regions
Table 4	Percent Distribution of 1981 Imports of Scientific, Industrial, and Medical Instruments and Equipment by Major Region and Selected Countries
Table 5	1980/1981 Percent Change in U.S. Imports of Instruments and Supplies by Major Product and Major Region
Table 6	Ratio of National R&D Expenditures to GNP, 1960-1979
Table 7	U.S. Trade Balance in R&D Intensive and Non-R&D Intensive Manufactured Product Groups, 1960-1977
Table 8	R&D Expenditures as a Percentage of Corporate Sales, Profits, Capital Spending - SAMA member companies, 1979

TABLE 1 - U.S. TRADE OF SCIENTIFIC, INDUSTRIAL AND MEDICAL INSTRUMENTS AND EQUIPMENT (IN MILLIONS OF DOLLARS)

	EXPORTS					IMPORTS				
	1979	1980	1981	Percent Change 1980-81	1979	1980	1981	Percent Change 1980-81	1979	1980
I. Engineering, Electrical Testing and Optical Instruments										
Engineering & Scientific Inst. SIC 3811	\$ 789	\$ 964	\$ 997	- 3%	\$ 125	\$ 189	\$ 273	- 44%		
Electronic Signal Measuring Inst. SIC 3825	1,025	1,324	1,506	- 14%	423	398	445	- 12%		
Optical & Analytical Inst. SIC 3832	593	691	1,077	+ 56%	393	413	605	- 46%		
TOTAL	\$2,407	\$ 2,979	\$3,580	- 20%	\$ 941	\$1,000	\$1,323	+ 32%		
II. Instruments for Measuring, Analysis and Control										
Process Control Instruments SIC 3223	\$ 515	\$ 661	\$ 773	- 17%	\$ 75	\$ 170	\$ 199	- 17%		
Fluid Meters & Conting Devices SIC 3824	82	89	113	- 27%	63	37	60	- 5%		
Measuring & Controlling Devices SIC 3829	736	879	644	- 27%	57	117	47	- 60%		
TOTAL	\$1,333	\$1,629	\$1,530	- 6%	\$ 195	\$ 344	\$ 306	- 11%		
III. Surgical, Medical and Dental Instruments										
Surgical & Medical Instruments SIC 3841	\$ 410	\$ 485	\$ 566	+ 17%	\$ 146	\$ 173	\$ 195	- 13%		
Surgical Appliances & Supplies SIC 3842	258	309	356	+ 15%	105	94	94	0		
Dental Equipment & Supplies SIC 3843	101	126	140	+ 11%	42	41	50	+ 22%		
Ophthalmic Goods SIC 3851	99	114	122	+ 7%	245	278	300	- 8%		
X-ray & Electromedical Equipment SIC 3893	707	839	1,006	+ 20%	275	312	388	- 24%		
TOTAL	\$1,585	\$1,873	\$2,190	+ 17%	\$ 813	\$ 898	\$1,027	- 14%		
TOTAL TRADE	\$5,325	\$6,481	\$7,300	+ 13%	\$1,949	\$2,242	\$2,656	+ 18%		

**TABLE 3 - DISTRIBUTION OF 1981 EXPORTS OF SCIENTIFIC, INDUSTRIAL & MEDICAL INSTRUMENTS & EQUIPMENT
BY MAJOR REGIONS AND SELECTED COUNTRIES**

	1981 Total Value of Exports (Mil \$)	PERCENTAGE DISTRIBUTION OF EXPORTS															
		Total Exports	Canada	EUROPEAN COMMUNITY					Sweden & Switzer- land	FAR EAST				Latin America	Middle East	Eastern Bloc	All Other Countries
				France	Italy	United Kingdom	West Germany	Total		Total	Japan						
I. Engineering, Electrical Testing and Optical Instruments																	
Engineering & Scientific Inst.	\$ 997	100%	13%	29%	7%	2%	11%	5%	4%	3%	14%	5%	15%	8%	2%	16%	
Electronic Signal Measuring Inst.	1,506	100%	11%	36%	7%	3%	12%	10%	4%	4%	23%	15%	9%	7%	1%	9%	
Optical & Analytical Inst.	1,077	100%	12%	33%	5%	4%	8%	9%	7%	4%	18%	10%	11%	4%	3%	15%	
TOTAL	\$3,530	100%	12%	33%	7%	3%	10%	8%	5%	4%	19%	10%	11%	6%	2%	13%	
II. Instruments for Measuring, Analysis and Control																	
Process Control Instruments	\$ - 773	100%	15%	30%	4%	2%	7%	8%	9%	1%	11%	5%	16%	9%	1%	16%	
Fluid Meters & Conting Devices	113	100%	28%	14%	2%	1%	5%	3%	3%	2%	10%	4%	23%	8%	1%	14%	
Measuring & Controlling Devices	644	100%	17%	30%	3%	4%	7%	8%	8%	4%	15%	9%	14%	7%	3%	10%	
TOTAL	\$1,530	100%	17%	29%	4%	2%	7%	8%	8%	3%	13%	7%	15%	8%	2%	13%	
III. Surgical, Medical and Dental Instruments																	
Surgical & Medical Instruments	\$ 566	100%	17%	29%	6%	2%	6%	7%	8%	3%	13%	8%	17%	10%	1%	10%	
Surgical Appliances & Supplies	356	100%	19%	33%	8%	2%	9%	6%	8%	4%	14%	8%	14%	5%	-	11%	
Dental Equipment & Supplies	140	100%	16%	30%	5%	5%	4%	9%	7%	9%	17%	12%	14%	4%	-	10%	
Ophthalmic Goods	122	100%	23%	23%	4%	3%	5%	5%	6%	4%	15%	6%	15%	10%	-	10%	
X-ray & Electromedical Equipment	\$1,006	100%	10%	37%	6%	3%	8%	8%	12%	4%	19%	14%	13%	5%	2%	10%	
TOTAL	\$2,190	100%	15%	33%	6%	3%	7%	7%	10%	4%	16%	11%	15%	6%	1%	10%	
1981 TOTAL TRADE	\$7,300	100%	14%	32%	5%	3%	9%	8%	7%	4%	17%	10%	13%	7%	2%	12%	
1960 TOTAL TRADE	\$6,481	100%	13%	34%	6%	3%	8%	9%	8%	4%	17%	10%	12%	5%	2%	13%	

TABLE 3 - 1980/1981 PERCENT CHANGE IN U.S. EXPORTS OF INSTRUMENTS AND SUPPLIES
BY MAJOR PRODUCT TO MAJOR REGIONS

	To All Countries	European Community	To the Far East	Latin America	To the Mid East	All Other Countries
I. Engineering, Electrical Testing and Optical Instruments						
Engineering & Scientific Inst. SIC 3811	+ 3%	+ 4%	+ 14%	- 3%	+ 21%	- 2%
Electronic Signal Measuring Inst. SIC 3825	+ 3%	+ 4%	+ 14%	- 3%	+ 21%	- 2%
Optical & Analytical Inst. SIC 3832	+ 14%	+ 5%	+ 20%	+ 20%	+ 94%	+ 8%
	+ 50%	+ 56%	+ 73%	+ 92%	+ 81%	+ 38%
TOTAL	+ 20%	+ 12%	+ 30%	+ 23%	+ 57%	+ 13%
II. Instruments for Measuring, Analysis and Control						
Process Control Instruments SIC 3223	+ 17%	- 1%	+ 25%	+ 34%	+ 25%	+ 25%
Fluid Meters & Conting Devices SIC 3824	+ 27%	- 6%	+ 57%	+ 37%	+ 50%	+ 28%
Measuring & Controlling Devices SIC 3829	- 27%	- 33%	- 35%	- 22%	+ 7%	- 23%
TOTAL	- 6%	- 16%	- 14%	+ 5%	+ 19%	- 2%
III. Surgical, Medical and Dental Instruments						
Surgical & Medical Instruments SIC 3841	+ 17%	+ 14%	+ 6%	+ 38%	+ 50%	+ 8%
Surgical Appliances & Supplies SIC 3842	+ 15%	+ 14%	+ 19%	+ 13%	+ 14%	+ 16%
Dental Equipment & Supplies SIC 3843	+ 11%	+ 2%	+ 4%	+ 5%	+ 13%	+ 26%
Ophthalmic Goods SIC 3851	+ 7%	+ 8%	- 10%	0	+ 50%	+ 10%
X-ray & Electromedical Equipment SIC 3693	+ 20%	+ 15%	+ 13%	+ 35%	+ 54%	+ 19%
TOTAL	+ 17%	+ 14%	+ 10%	+ 26%	+ 45%	+ 15%
TOTAL TRADE	+ 13%	+ 8%	+ 15%	+ 19%	+ 42%	+ 9%

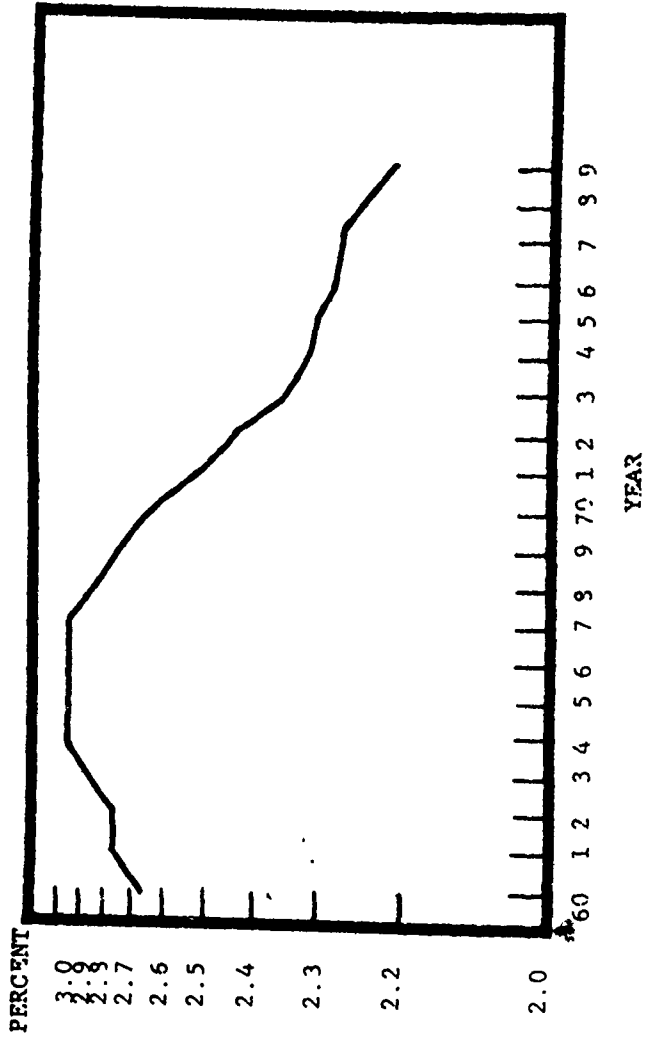
TABLE 4 - DISTRIBUTION OF SCIENTIFIC, INDUSTRIAL & MEDICAL INSTRUMENTS & EQUIPMENT
BY MAJOR REGIONS AND SELECTED COUNTRIES

	1981 Total Value of Imports (Mil \$)	PERCENTAGE DISTRIBUTION OF IMPORTS									
		Total Imports	EUROPEAN COMMUNITY					Canada	Switzer- land	FAR EAST	
			Total	France	United Kingdom	Nest Germany	Other E.C.			Total	All Other Countries
Engineering, Electrical Testing and Optical Instruments											
Engineering & Scientific Inst.	SIC 3811	\$ 273	100%	25%	14%	14%	5%	6%		15%	8%
Electronic Signal Measuring Inst.	SIC 3825	445	100%	25%	14%	10%	10%	4%		23%	11%
Optical & Analytical Inst.	SIC 3832	605	100%	1%	6%	13%	1%	3%		71%	4%
TOTAL		\$1,323	100%	14%	10%	12%	5%	4%		43%	7%
Instruments for Measuring, Analysis and Control											
Process Control Instruments	SIC 3223	\$ 199	100%	12%	12%	18%	5%	4%		15%	31%
Fluid Meters & Conting Devices	SIC 3824	60	100%	5%	10%	17%	1%	7%		40%	18%
Measuring & Controlling Devices	SIC 3829	47	100%	9%	19%	11%	4%	4%		32%	17%
TOTAL		\$ 306	100%	10%	13%	16%	5%	5%		22%	26%
Surgical, Medical and Dental Instruments											
Surgical & Medical Instruments	SIC 3841	\$ 195	100%	3%	7%	26%	4%	5%		39%	16%
Surgical Appliances & Supplies	SIC 3842	94	100%	8%	9%	36%	11%	11%		8%	16%
Dental Equipment & Supplies	SIC 3843	50	100%	6%	4%	38%	6%	12%		22%	12%
Ophthalmic Goods	SIC 3851	300	100%	3%	4%	7%	13%	-		41%	16%
X-ray & Electromedical Equipment	SIC 3893	388	100%	7%	5%	29%	16%	2%		15%	21%
TOTAL		\$1,027	100%	5%	5%	23%	12%	3%		27%	18%
1981 TOTAL TRADE		\$2,656	100%	10%	9%	17%	8%	4%		31%	13%
1980 TOTAL TRADE		\$2,244	100%	9%	8%	21%	8%	4%		32%	1%

TABLE 5 - 1980/1981 PERCENT CHANGE IN IMPORTS OF INSTRUMENTS AND SUPPLIES
BY MAJOR PRODUCT AND MAJOR REGION

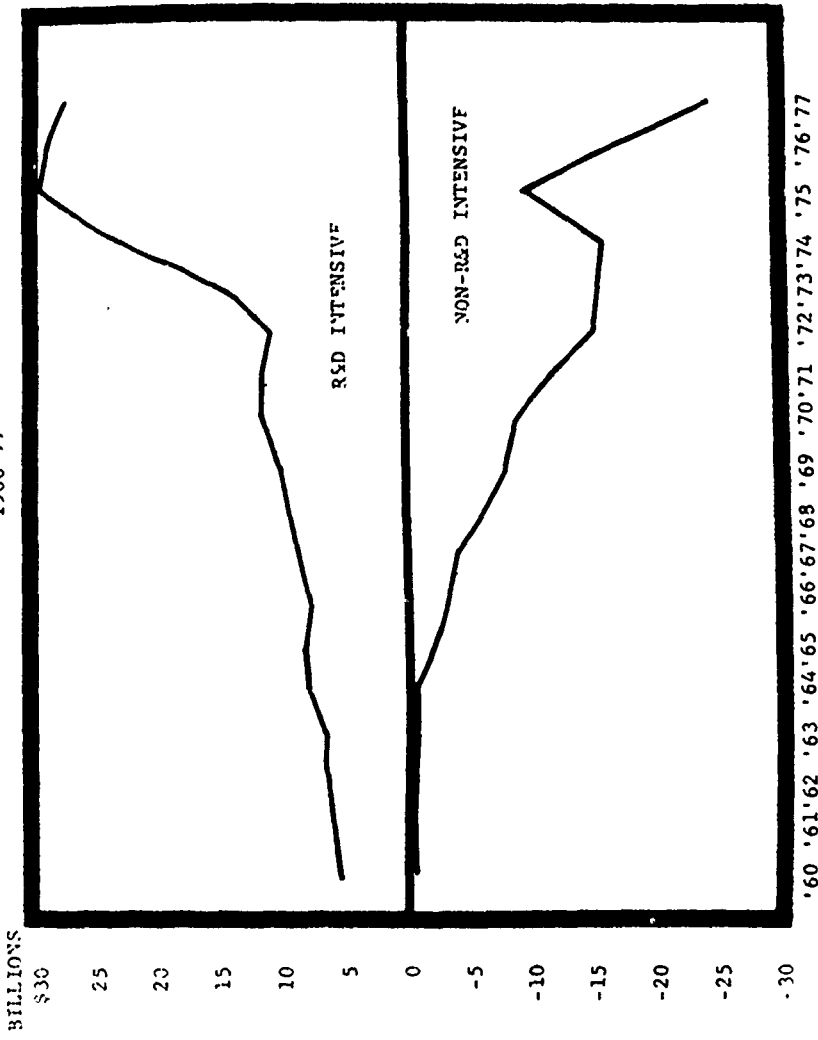
	From All Countries	From the European Community	From the Far East	From All Other Countries
I. Engineering, Electrical Testing and Optical Instruments				
Engineering & Scientific Inst. SIC 3811	+ 44%	+ 44%	+ 41%	+ 45%
Electronic Signal Measuring Inst. SIC 3825	+ 12%	+ 12%	+ 26%	+ 5%
Optical & Analytical Inst. SIC 3832	+ 46%	+ 60%	+ 38%	+104%
TOTAL	+ 32%	+ 33%	+ 36%	+ 25%
II. Instruments for Measuring, Analysis and Control				
Process Control Instruments SIC 3223	+ 17%	+ 6%	+ 36%	+ 22%
Fluid Meters & Conting Devices SIC 3824	+ 5%	- 10%	+ 9%	+ 20%
Measuring & Controlling Devices SIC 3829	- 60%	- 67%	- 46%	- 59%
TOTAL	- 11%	- 24%	- 4%	0
III. Surgical, Medical and Dental Instruments				
Surgical & Medical Instruments SIC 3841	+ 13%	- 1%	+ 27%	+ 15%
Surgical Appliances & Supplies SIC 3842	0	- 9%	+ 14%	+ 14%
Dental Equipment & Supplies SIC 3843	+ 22%	+ 14%	+ 38%	+ 25%
Ophthalmic Goods SIC 3851	+ 8%	- 8%	+ 23%	+ 19%
X-ray & Electromedical Equipment SIC 3693	+ 24%	+ 5%	+ 30%	+ 85%
TOTAL	+ 14%	- 1%	+ 26%	+ 40%
TOTAL TRADE	- 18%	+ 7%	+ 29%	+ 25%

TABLE 6
RATIO OF NATIONAL R. & D.
EXPENDITURES TO GNP
1960-79



SOURCE: U.S. NATIONAL SCIENCE BOARD

TABLE 7
U.S. TRADE BALANCE IN R.&D.-INTENSIVE AND NON-R.&D.-INTENSIVE
MANUFACTURED PRODUCT GROUPS
1960-77



SOURCE: U.S. NATIONAL SCIENCE BOARD

TABLE 8

R&D EXPENDITURES AS A PERCENTAGE
OF CORPORATE SALES, PROFITS, CAPITAL SPENDING

SAMA MEMBER COMPANIES - 1979

PRODUCT GROUPS	TOTAL COMPANY SALES	AFTER TAX PROFITS	CAPITAL EXPENDITURES
Process Measurement & Control	4.5	157.1	222.5
Instrument Companies*	6.2	77.6	121.1
Laboratory Apparatus Companies**	6.1	51.4	122.6
Composite	5.6	86.9	150.9

* - Laboratory analytical, clinical and
measurement and test instruments.

** - Manufacturers of laboratory equipment,
reagent chemicals and sample handling.

Source: SAMA, Washington, DC

SAMA**SPECIAL REPORT**

August 9, 1982

**BUSINESS ACTIONS TO PREVENT ILLEGAL OR
UNAUTHORIZED EXPORTS OF U.S. PRODUCTS
OR TECHNOLOGY**

Recent disclosures by the CIA and hearings conducted by the Senate Permanent Subcommittee on Investigations have alerted the public to the continuing efforts of the Soviet Union and other countries of the Soviet Bloc to secure sophisticated U.S. equipment and U.S. products and technology, ostensibly for domestic use but actually for illegal shipment to unauthorized destinations.

The Reagan Administration is sensitive to the fact that these acquisitions, which the Soviets gain so cheaply, can put our country at a military disadvantage. The administration has recently taken a number of steps to limit any such illegal activities and strengthen its export control efforts. For example:

- The U.S. Customs Service has fielded some 200 additional inspectors in an effort, called "Operation Exodus," to monitor U.S. exports more closely.
- The U.S. Department of Commerce is strengthening its compliance activities by placing a Deputy Assistant Secretary in Charge of Compliance, adding personnel in Washington, DC, and establishing two new branch compliance offices, one in San Francisco and the other in Los Angeles.
- The FBI and CIA have increased their efforts to monitor the activities of Communist country nationals in this country and to detect and prevent the clandestine acquisition or diversion of sensitive U.S. goods and technology.
- The U.S. State Department and other agencies of the U.S. government are seeking to strengthen and enlarge the activities of COCOM, the international body coordinating the strategic control efforts of the NATO countries and Japan.
- The U.S. Department of Defense is concluding a massive effort to identify equipment and technologies in the civil sector which are truly militarily critical and, along with other U.S. government agencies, is using this information to assist in reaching export licensing decisions.

The U.S. government needs the help of U.S. business in its efforts to limit the unauthorized flow of equipment and technology. It is in the interest of U.S. businessmen to give this help for patriotic reasons and to ensure that their business activities are carried out within the law and thus minimize the possibility of being caught in the U.S. enforcement net. No one wants to be saddled with time-consuming and costly investigations to say nothing of running the risk of lawsuits, fines, possible loss of the ability to export, and even imprisonment.



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U.S. businessmen can be of assistance by:

1. Identifying inquiries and orders for products, parts or technology, including software, which are likely to be shipped outside the United States and seeing that they are handled by export specialists.
2. Ensuring that their export specialists are sufficiently knowledgeable about export controls and that appropriate screening and licensing procedures are followed.
3. Making certain that their employees -- whether they live abroad, travel abroad, transmit information abroad, or merely come in contact with foreigners visiting the United States -- fully understand that the U.S. government restricts the flow of technical data, and know-how, whether it be written, oral or visual.

SAMA's Export Administration Act Task Group has compiled some detailed comments on each of these three areas. These are attached for the use of your operating personnel.

FOR FURTHER INFORMATION CONTACT:

Eben S. Tisdale
 Director of Public Affairs
 Scientific Apparatus Makers Association
 (202) 223-1360

**STEPS A COMPANY CAN TAKE TO EXERCISE
CONTROL OF HIGH TECHNOLOGY ELECTRONICS EXPORTS**

U.S. businessmen in the high technology electronics industry have three ways to help the U.S. government limit the illegal flow of commercial equipment and technology to unauthorized destinations.

- I. By identifying inquiries and orders for products, parts, or technology including software, which are likely to be shipped outside the United States and seeing that they are handled by export specialists.

Companies involved in international business, even the smallest, have established or have contact with someone or some group of people who have the specialized knowledge and skill in finance, shipping, export documentation and export control needed to handle international inquiries and orders. The problem is to make sure that these inquiries and orders are identified by the firm's domestic sales and order processing people and given to the export specialists for handling.

Identification, simple whenever a destination outside the United States is indicated, becomes much more difficult when exportation is not mentioned or is willfully concealed. For this reason, many U.S. firms find it appropriate to involve their export specialists in the handling of inquiries and orders from little known or unknown customers who seem to have no obvious use of either the items or the quantities involved, no suitable facilities in which to use them, or who refuse to identify the actual end user or end use of the items.

In addition, firms with foreign words or phrases on the letterheads and firms with names including words such as International, Trade, Export, Import, Limited or Ltd. often handle international business. Finally, inquiries and orders with one or more of the following characteristics often indicate destinations outside the United States, even if the customer maintains the items are for domestic use.

- A. Specifying 230V 50 Hz, 115V 50 Hz, or unusual power cords, plugs, fuses or power line operation.
 - B. Requiring special salt spray or humidity packaging, export packing, and/or export marking.
 - C. Requiring export information such as;
 - 1. Cubic volumes and/or packaged weights, especially in metric terms.
 - 2. U.S. Government Schedule B and/or export licensing information.
 - 3. GSA Form 1246 Terms and Conditions and/or other A.I.D. documentation.
 - 4. Certifications as to country of origin, conformance to international standards or testing requirements, etc.
 - D. Requesting direct shipment abroad or delivery to a consignee in the United States known to be an overseas shipper, a freight forwarder, or one who intends to carry the products abroad as part of his effects.
 - E. Specifying payment terms involving letters of credit, drafts drawn on foreign buyers, or other specialized banking requirements.
 - F. Requesting exemption from state sales taxes, but unable or unwilling to provide a state resale tax identification number.
- II. By ensuring that their export specialists are sufficiently knowledgeable about export controls and that appropriate screening and licensing procedures are followed.

In addition to requiring adequate knowledge, many U.S. companies insist their export specialists:

- A. Screen, at the time of receipt, each order the firm is to ship outside the United States so that if a validated export license is required it can be obtained before shipment is scheduled. Orders are also screened at the time of shipment to ensure that the U.S. export regulations have not changed so that a validated license is now required.
- B. Notify the purchaser in writing at the time of acceptance whether orders for domestic shipment, which the firm knows or suspects will be exported, will require a validated U.S. export license. Some firms also provide the Schedule B and Commodity Control List numbers of the various items and repeat in the invoice the need for export licensing.
- C. Receive, before shipment of controlled items to a domestic address, a copy of an appropriate U.S. export license if the purchaser is known or suspected of wishing to see the items shipped outside the U.S. and if his ability to export correctly is unknown or if his integrity seems questionable.
- D. Assist employees carrying samples, demonstration equipment, etc., abroad by obtaining the proper export licensing and export documentation.
- E. Discuss with the Office of Export Compliance, U.S. Department of Commerce, (202) 377-4608, any unusual situations or suspected diversions and receive advice prior to shipment.

III. By making certain that their employees — whether they live abroad, travel abroad, transmit information abroad, or merely come in contact with foreigners visiting the United States — fully understand that the U.S. government restricts the flow of technical data or know-how, whether it be written, oral or visual.

Although the U.S. technical data regulations are complex, the general rule is that the only commercial or educational technical data that can be exported or released abroad without first securing a validated U.S. export license is that which is generally available to the public in the United States. Generally available is defined to mean data released orally or visually at open conferences, lectures, or trade shows, and publications which are available without charge, available at libraries open to the public or available without restriction at nominal cost.

An important exception to this general rule permits U.S. firms to conduct most of their commercial business in non-Communist areas abroad including training people, transferring software and controlled technology, etc. This exception applies to importers in non-Communist countries and Yugoslavia who are covered by a written agreement with a U.S. firm signed either by themselves as individuals or by their non-Communist employers stipulating that neither the U.S. technical data nor the direct product thereof, is intended to be shipped directly or indirectly to Communist destinations without first having received written authorization from the U.S. Department of Commerce.

This exception does not apply to foreign nationals from Communist countries, excluding Yugoslavia. Communist nationals may only be shown commercial equipment and facilities which are freely and generally available in the United States and only published and freely available commercial information may be disclosed — nothing proprietary or not generally available. Moreover, since the U.S. government is interested in the visits made by Communist nationals, many firms find it appropriate to secure clearance from the U.S. State Department prior to each visit:

Soviet clearances - (202) 632-6442
 East European clearances - (202) 632-2721
 People's Republic of China clearances - (202) 632-1004

For further information, call:

Eben S. Tisdale
 Director of Public Affairs
 Scientific Apparatus Makers Association
 (202) 223-1360

Mr. BINGHAM. Mr. Henriques.

STATEMENT OF VICO E. HENRIQUES, PRESIDENT, COMPUTER & BUSINESS EQUIPMENT MANUFACTURERS ASSOCIATION

Mr. HENRIQUES. Thank you, Mr. Chairman.

My name is Vico Henriques. I am president of the Computer & Business Equipment Manufacturers Association [CBEMA]. We represent 40 companies accounting for over \$50 billion in sales volume of computers and business equipment produced in the United States. During 1981 our member companies employed 750,000 workers in 50 States and had a positive trade surplus of \$7 billion.

Because our companies rely on the exports and foreign investments so heavily we welcome this opportunity to comment on U.S. competitiveness in high technology markets. Furthermore, we would like to compliment you for holding this hearing to permit a discussion of trade policy.

I have a lengthy statement which I would offer for the record and I will try to confine my remarks to those specifically oriented toward the Trade Regulation and Export Administration Act.

Mr. BINGHAM. Without objection, your full statement will appear in the record.

Mr. HENRIQUES. I would also point out, Mr. Chairman, there was an attachment to the statement which is a survey of the U.S. high technology electronics industry, the sector survey done in conjunction with the industry sector advisory committee which I think may be of use to the committee.

Mr. BINGHAM. The staff will determine whether that should be part of the file or part of the record.¹

Mr. HENRIQUES. Fine.

The discussion of U.S. competitiveness in high technology markets would not be complete without focusing on export controls imposed on U.S. products and technology through the Export Administration Act. In September 1983, it will be 4 years since the act was last renewed. During those 4 years progress has been made on several fronts; new issues have emerged and several issues remain unchanged.

PROGRESS TOWARD EFFECTIVE EXPORT CONTROLS

We agree with the need to control the export of items which would contribute significantly to the military potential of adversary nations. However, the goal of such controls must clearly be to retard or deny adversaries access to militarily critical products or technology. At the same time, the process should not deny U.S. suppliers when other comparable uncontrolled sources of supply exist. All sides of the debate agree to these statements. The problems emerge when the operational procedures are formulated to achieve these goals.

Progress toward these goals has been made on several fronts in these past 4 years. First, we can point to the Presidential initiative taken at the first economic summit meeting which established the high level Coordinating Committee [COCOM] review. This estab-

¹See app. 5.

lished the highest level of support for the idea of achieving consistent export policy and practice among the NATO allies plus Japan. While the results are not yet in place, the commitment of the United States to this necessary precondition for effective export controls is firmly established.

Another dimension of progress is the issue of the militarily critical technology list [MCTL]. The numerous review and advisory mechanisms created over the past year have provided a forum for communications that appears to be working.

A third area of progress is in understanding what is militarily critical. Progress in this area may not be as positive as in the other areas just mentioned; however, we at least understand the problem better. While we seem able adequately to protect many items that are considered to be militarily critical by U.S. standards, our adversaries have aggressively sought and exploited many technologies for military purposes that are considered neutral, freely available, or obsolete by U.S. standards.

NEW EXPORT ISSUES

New issues have emerged since the present act passed the Congress. The first of these relates to the impact of East-West controls on free-world trade. U.S. retransfer controls are a tolerable burden when U.S. suppliers are the major sources of the products and technology. However, we are observing more and more non-U.S. suppliers of products from countries which do not impose export or re-export controls. This is not limited to head-on competition with our COCOM partners, but also includes areas where we are competing with countries newly involved in the electronics and counter marketplace. The nonaligned neutrals, Sweden, Switzerland, and Austria are obvious examples.

Additionally, we need to recognize that Israel, Brazil, Mexico, and several other countries now or soon will be offering sophisticated electronic products completely outside the COCOM discipline.

A second area is our improved understanding of adversary needs. Recently, there have been indicators that our understanding is improving dramatically about what our adversaries want and how they obtain it. These areas which should become the focus for attention, such as the open literature, clandestine activity, professional meetings, all of which will pose serious dilemmas.

Attempts to control these areas by our present techniques will conflict with established concepts of freedom of scientific inquiry, freedom of movement, and freedom of speech. The resolution of these problems will demand the best of communications among all U.S. parties, as well as those of our allies.

The need to shift emphasis from product controls to technology controls has been discussed, debated, analyzed, and in the 1979 act, mandated by legislation. Despite the logic of this conclusion, progress has been slow in the United States and virtually nonexistent in Europe. As a result, we have essentially added technology controls while keeping the product controls. The decontrol of products has not been accomplished at this time.

Another issue is the elimination of unnecessary restrictions to trade. In 1977 the Department of Defense stressed the balance that

must be maintained between protecting national security and eliminating unnecessary restriction to trade. Very few demonstrable changes in this regard can be documented.

Defining uncontrollable foreign availability is a third area where progress has been slow. These changes demonstrate the rapidly growing non-United States, nonadversary, non-COCOM sources of technology and products which heretofore were considered militarily critical.

FOCUS ON NATIONAL SECURITY CONTROLS

The key to the resolution of these problems is to focus on the real objective of national security controls. CBEMA recognizes this objective to be the maintenance of a technological superiority in U.S.-fielded military equipment over that of our adversaries. The source of the technology to sustain this superiority will be the integrated defense-commercial technology base.

The computer industry stands ready to enhance the rate of introduction of new technology into Defense Department-fielded equipment, to maintain U.S. leadership in international markets and to retard the flow of militarily critical products to our adversaries. We conclude that the maintenance of leadership in the international computer and electronics marketplace is essential in achieving both U.S. commercial and defense objectives.

For this reason, we consider the title I provisions to the renewal of the act of vital importance to the competitiveness of the U.S. electronics and computer industry in world markets, and to the maintenance of a superior defense force.

In conclusion, the goal of the U.S. international trade policy must be to continue to expand open and nondiscriminatory world trade while maintaining leadership in high technology. The existing international trading system is the best structure in which to pursue this goal.

The MFN and national treatment principles are the best principles on which to base this policy. We do believe that certain changes in the scope of GATT must be made to address problems of investment, services, and high-technology trade. We also believe that certain changes in domestic law such as the Export Administration Act are desirable to promote exports of high-technology products.

However, we underscore that the essential issue before us today is not the adequacy of international or domestic rules. Rather, the essential issue is the willingness of the executive branch aggressively and effectively to pursue the basic goals of our trade policy.

Thank you, Mr. Chairman.

Mr. BINGHAM. Thank you, Mr. Henriques.

[Mr. Henriques' prepared statement follows:]

**PREPARED STATEMENT OF VICO E. HENRIQUES, PRESIDENT, COMPUTER & BUSINESS
EQUIPMENT MANUFACTURERS ASSOCIATION**

INTRODUCTION

This statement is on behalf of the Computer and Business Equipment Manufacturers Association which represents 40 companies accounting for over \$50 billion in sales volume of computers and business equipment produced in the United States. During 1981, CBEMA member companies, employed 750,000 workers in 50 states, and had a trade surplus of over \$7 billion. Because the CBEMA companies rely so heavily on exports and foreign investment, we welcome this opportunity to comment on U.S. competitiveness in high technology markets. Furthermore, we would like to compliment the chairman of the Subcommittee, Mr. Bingham, for holding this hearing to permit a discussion of trade policy.

Before we address specific issues, we believe it is essential to discuss trade policy principles during this period of rapid economic change. Such a discussion permits us to review the past and to look into the future. It also requires all of us to assess the successes and failures of our trade policy, to articulate what the basic principles underlying that trade policy should be, and to identify those areas in which United States international trade policy must be adjusted to address the problems of competition in the future.

Given the subject of this hearing, we believe it is essential to consider, if only briefly, the origins of modern United States international trade policy. For the past fifty years, the goal of our trade policy has been to expand open and nondiscriminatory world trade. Since enactment of the Reciprocal Trade Agreements Act of 1934, the fundamental principle underlying

this policy has been most-favored-nation (MFN) treatment for imports into the United States and for United States exports to other countries. During the same period, an equally important corollary to the MFN principle has been national treatment for American goods and investment once they have gotten past a foreign country's borders and entered the foreign market place.

Since the General Agreement on Tariffs and Trade (GATT) came into existence in 1947, the United States has pursued its trade policy goal largely through multilateral and bilateral trade negotiations under the auspices of that institution. In these GATT negotiations, the United States has always sought and should continue to seek, concessions from other countries which are of comparable benefit to the concessions granted by the United States. Under the GATT system, of course, trade concessions are generally granted on an MFN basis with the result that each GATT member country achieves benefits which are, on a global basis, comparable to the concessions it grants. In this sense, United States international trade policy has incorporated the concept of negotiated reciprocal benefits for many years and should continue to do so.

The international trading system, which was designed largely by the United States, and United States international trade policy since 1934 have resulted in enormous benefits, both for the United States and the world. These benefits have been achieved through progressive lowering of barriers to trade in goods and elimination of discriminatory practices which distort trade.

This approach to international trade policy has been remarkably successful. The statistics speak for themselves. United States international trade now accounts for almost 17 percent of our Gross National Product. Furthermore, it has been estimated that one in six manufacturing jobs is attributable to manufacture for export and that one in three acres planted by U.S. farmers produce crops for export.

It is obvious that our trade policy has, generally speaking, served the interests of the United States well in the past. The question which has been raised recently is whether it will continue to promote the interests of the United States.

In the future, competition for world markets will intensify. U.S. Government intervention in the market place will increase inevitably, creating new forms of barriers to trade and investment and discrimination. Furthermore, the United States will become even more dependent on exports and imports.

These changes in the world economy and in the importance of international trade to the United States are not speculative. They are realities, realities which are already having a significant impact on United States commerce.

United States trade policy must be based on a firm understanding of these new realities. It must aggressively seek elimination of new barriers and distortions to trade in goods and services and to United States investment abroad.

It is emphatically our view that the best framework in which to carry out such a trade policy in the future is through negotiations within the existing international structure and existing U.S. international trade statutes. We hold this view because of the historical success of this approach for the United States. Furthermore, we are convinced that American industry can compete effectively on world markets if existing domestic and international rules are honored. Therefore, we are convinced that there is absolutely no reason to question the basic goal or the fundamental principles of United States international trade policy.

THE "NEW" RECIPROCITY?

We feel compelled to make this assertion because, recently, there has been much debate about the need for a

fundamental change in United States international trade policy. The frustrations leading to this debate are real. Persistent trade deficits, lack of compliance with, or avoidance of, international trade rules, such as the GATT, and increased competition from both developed and developing countries are realities. These realities, however, do not prove that the United States international trade policy is not working. Nor do they prove that the international trading rules do not work. In our view, these realities require action within the traditional system. They do not require destruction of a system that has served our interests well.

Nonetheless, some people have suggested that United States trade policy should be based on what they conceive to be a new principle of retaliatory bilateral reciprocity. This principle, taken to its extreme, would require that for every product imported into the United States from a given country, there be one similar product exported to that country from the United States.

There appear to be two arguments used by the proponents of retaliatory bilateral reciprocity for moving from the MFN and

national treatment principles to the "new" reciprocity as the basis for our trade policy. First, it is claimed that the historic procedure for eliminating trade barriers and discriminatory practices through GATT negotiations, the results of which are implemented on an MFN basis, will not work in the future. Second, it is alleged that existing international rules and United States laws do not adequately address the problems of the future.

With respect to the first argument, retaliatory bilateral reciprocity is not a new concept. We cannot forget history. Before the 1930's, the United States did pursue a trade policy based on retaliatory bilateral reciprocity. According to a 1919 report on "Reciprocity and Commercial Treaties" by the United States Tariff Commission the result was:

"(A) policy of special arrangements (leading) ... to troublesome complications ... When each country with which we negotiate is treated by itself and separate arrangements are made with the expectation that they shall be applicable individually, claims are nonetheless made by other states with whom such arrangements have not been made. Concessions are

asked; they are sometimes refused; counterconcessions are proposed; reprisal and retaliation are suggested; unpleasant controversies and sometimes international frictions result."

The consequence was beggar-thy-neighbor trade policies which played a major role in making the 1929 Depression the most severe in world history.

There is no reason to believe that the results of a policy of retaliatory bilateral reciprocity would be any different in the future. Each country would seek special arrangements exclusively benefiting its trade. The result was, and would be, a dramatic increase in barriers and distortions resulting in a dramatic collapse of world trade.

There is considerable evidence that a trade policy based on reciprocity cannot work and will, in fact, injure the United States. There is also considerable evidence that a trade policy based on negotiations, multilateral trade rules, and the MFN and national treatment principles will achieve benefits for the United States.

THE NEED FOR CHANGES IN GATT

The second argument used by proponents of the "new" reciprocity is that existing international trade rules and United States statutes do not adequately address the problems of the future. We believe that certain limited changes to U.S. statutes and changes to the GATT rules are necessary to address the problems of the future. However, we do not believe that the adequacy, or lack thereof, of U.S. law or the GATT has any bearing on the appropriateness of MFN and national treatment as the basis for United States international trade policy.

With this in mind, we point out that it is obvious that existing international rules, such as the GATT or Treaties of Friendship, Commerce, and Navigation, do not adequately address certain problems. For example, barriers to international investment flows, to certain kinds of high technology trade, e.g., international information flows, and to international trade in services are not currently subject to any effective international discipline. These problems will become increasingly significant in the future. It is imperative that the United States make every effort to cure the inadequacies of the existing international system in this regard through negotiation of new rules at the earliest possible date.

We strongly support the initiative of the Administration, and particularly of Ambassador Brock, in seeking to raise the problems of investment, high technology, and services at the GATT Ministerial meeting this November. It is imperative that the United States sustain this effort which will inevitably require several years of hard work and negotiation.

It is even more obvious that existing international rules must be enforced aggressively and effectively. We cannot conclude that the GATT system does not work until we and the other GATT members have made a genuine effort to make the system work. This effort must include aggressive use of dispute settlement procedures by the United States Government to assure compliance of other countries with the GATT rules. Finally, and most significantly, this effort must be effective. That is, our trade negotiators must consider the nature of the GATT system and the kinds of disputes which, realistically, can be resolved through that system.

On this point, it is important to remember that GATT is ~~not~~ a court. Nor is it a purely political institution. It is a system of rules requiring or prohibiting certain kinds of government behavior with procedures for resolving disputes under those rules.

In essence, the GATT is an institution which is designed to force negotiated resolution of international trade disputes within a framework of legal obligations. Disputes which relate to government laws, regulations, or policies and which present violations of the letter or spirit of GATT rules are clearly suitable for negotiated resolution within the GATT framework. It is this variety of disputes which the United States Government should pursue aggressively through GATT.

THE NEED FOR CHANGES IN U.S. LAW

Turning now to existing United States trade statutes, we believe that a primary issue is whether the President is using his current authority to take appropriate and effective actions in pursuit of the goals of the United States trade policy. We do not believe the Executive Branch has done as much as it can do under existing law.

With some exceptions, we strongly believe that the existing statutory framework is sufficient to permit effective action if the President chooses to use that authority. The President has extraordinarily broad authority to take actions in the pursuit of better access to foreign markets. Sections 102

(relating to nontariff barrier agreements), 122 (relating to balance of payments), 123 (relating to compensation authority), 301 (relating to unfair trade practices), 404 and 405 (relating to treatment of nonmarket economies) and 501 (relating to GSP) of the Trade Act of 1974 are just some of the statutory provisions which the President may use to pursue U.S. objectives through negotiations. These provisions give him leverage during negotiations by enabling him to threaten action should the negotiations fail. They also give him authority to retaliate, in fact, in accordance with GATT rules if negotiations do fail.

Rather than spending an inordinate amount of time discussing the terms of new, unnecessary, authority based on the "new" reciprocity, we should consider whether existing legal authority is being used as effectively as it can be used.

The current condition of the economy and the emotional level of the current debate on the "new" reciprocity requires forward looking and positive proposals if we are to avoid a Christmas tree decorated with numerous counterproductive protectionist proposals. CBEMA endorses Senator Danforth's

legislation, S.2094 and has urged that the legislation not be loaded down with protectionist amendments. This bill strengthens the existing provisions of U.S. law regarding U.S. Government action in the face of foreign governments unfair trade practices.

TRADE REGULATIONS AND THE EXPORT ADMINISTRATION ACT

The discussion of U.S. competitiveness in high technology markets would not be complete without focussing on export controls imposed on U.S. products and technology through the Export Administration Act. In September 1983, it will be four years since the Act was last renewed. During those four years progress has been made on several fronts; new issues have emerged and several issues remain unchanged.

CEBEMA agrees with the need to control the export of items which would contribute significantly to the military potential of adversary nations. However, the goal of such controls must clearly be to retard or deny adversaries access to militarily critical products or technology. At the same time, the process should not deny U.S. suppliers when other comparable uncontrolled sources of supply exist. All sides of the debate agree to these statements. The problems emerge when the operational procedures are formulated to achieve these goals.

Progress toward these goals has been made on several fronts in these past four years. First, we can point to the Presidential initiative taken at the first economic summit meeting which established the high level Coordinating Committee review. This established the highest level of support for the idea of achieving consistent export policy and practice among the NATO allies plus Japan. While the results are not yet in place, the commitment of the U.S. to this necessary precondition for effective export controls is firmly established.

Another dimension of progress is the issue of the militarily critical technology list (MCTL). CBEMA, along with several other associations, has participated in a review of the 1981 version of the MCTL. In the computer areas, our technical experts from CBEMA member companies have reviewed the U.S. Government document, have received classified intelligence briefings and have prepared comments for submission to the Department of Defense later on this year. A detailed summary of our findings in the computer and software area would be premature. However, one striking conclusion is the degree of general agreement reached between the MCTL, as written by the Government and our technical experts. The numerous review and advisory mechanisms created over the past year have provided a forum for communications that appears to be working. CBEMA is encouraged by these cooperative efforts and hopes that cooperation would be continued.

A third area of progress is in understanding what is "Militarily Critical". Progress in this area may not be as positive as in the other areas just mentioned; however, we at least understand the problem better. We better understand that our adversaries don't necessarily seek or exploit the same technology U.S. military experts define as critical. While we seem able adequately to protect many items that are considered to be militarily critical by U.S. standards, our adversaries have aggressively sought and exploited many technologies for military purposes that are considered neutral, freely available or obsolete by U.S. standards.

New issues have emerged since the present act passed the Congress. The first of these relates to the impact of East/West controls on freeworld trade. U.S. retransfer controls are a tolerable burden when U.S. suppliers are the major sources of the products and technology. However, we are observing more and more non-U.S. suppliers of products from countries which do not impose export or re-export controls. This is not limited to head-on competition with our COCOM partners, but also includes areas where we are competing with countries newly involved in the electronics

and computer marketplace. The non-aligned neutrals, Sweden, Switzerland, and Austria are obvious examples. Additionally, we need to recognize that Israel, Brazil, Mexico and several other countries now or soon will be offering sophisticated electronic products completely outside the COCOM discipline.

A second area is our improved understanding of adversary needs. Recently, there have been indicators that our understanding is improving dramatically about what our adversaries want and how they obtain it. The complete story isn't known yet, but it does appear possible to conclude that adversary acquisitions of military significance have been possible by exploiting the openness and richness of the U.S. society and not primarily by the means of diverting licensed export shipments. The areas which should become the focus for attention, such as the open literature, clandestine activity, professional meetings, will pose serious dilemmas. Attempts to control these areas by our present techniques will conflict with established concepts of freedom of scientific inquiry, freedom of movement, and freedom of speech. The resolution of these problems will demand the best of communications among all U.S. parties, as well as those of our allies.

There are several issues where there is little, if any, progress for nearly a decade. The need to shift emphasis from product controls to technology controls has been discussed, debated, analyzed, and in the 1970 Act, mandated (by legislation). Despite the logic of this conclusion, progress has been slow in the U.S. and virtually non-existent in Europe. As a result, we have essentially added technology controls while keeping the product controls. The decontrol of products has not been accomplished at this time.

Another issue in which progress is less than desired is the elimination of unnecessary restrictions to trade. In 1977 the Department of Defense stressed the balance that must be maintained between protecting national security and eliminating unnecessary restriction to trade. However, in the 5 years since DOD interim guidelines were published, very few demonstratable changes in this regard can be documented. Industry, in fact, can point to several reversals and delays, increasing the burden of controls.

Defining uncontrollable foreign availability is a third area where progress has been slow. In the last half of the decade, there have been dramatic changes in the availability of indigenous and uncontrollable sources of products and technology for adversary nations, particularly in the minicomputer and software areas. These changes demonstrate the rapidly growing non-U.S., non-adversary, non-COCOM sources of technology and products which heretofore were considered militarily critical.

CBEMA recognizes that these complex problems just discussed can only be resolved by working closely with the Government, particularly the Executive Branch. The key to the resolution of these problems is to focus on the real objective of national security controls. CBEMA recognizes this objective to be the maintenance of a technological superiority in U.S. fielded military equipment over that of our adversaries. The source of the technology to sustain this superiority will be the integrated defense-commercial technology base. The computer industry stands ready to enhance the rate of introduction of new technology into Defense Department fielded equipment, to maintain U.S. leadership in international markets and to retard the flow of militarily critical products to our adversaries.

We concluded that these three objectives are not independent and must be dealt with in a balanced coherent fashion. Thus, we conclude that the maintenance of leadership in the international computer and electronics marketplace is essential in achieving both U.S. commercial and defense objectives.

For this reason, CBEMA considers the Title I provisions to the renewal of the Act of vital importance to the competitiveness of the U.S. electronics and computer industry in world markets, and to the maintenance of a superior defense force.

CONCLUSION

In conclusion, the goal of United States international trade policy must be to continue to expand open and nondiscriminatory world trade while maintaining leadership in high technology. The existing international trading system is the best structure in which to pursue this goal.

The MFN and national treatment principles are the best principles on which to base this policy. We do believe that certain changes in the scope of GATT must be made to address problems of investment, services, and high technology trade. We also believe that certain changes in domestic law such as the Export Administration Act are desirable to promote exports of high technology products. However, we underscore that the essential issue before us today is not the adequacy of international or domestic rules. Rather, the essential issue is the willingness of the Executive Branch aggressively and effectively to pursue the basic goals of our trade policy.

Mr. BINGHAM. Now we will hear from Mr. Peter McCloskey.

**STATEMENT OF PETER F. McCLOSKEY, PRESIDENT,
ELECTRONIC INDUSTRIES ASSOCIATION**

Mr. McCLOSKEY. Thank you, Mr. Chairman and members of the subcommittee.

I am president of the Electronic Industries Association and we are grateful for the opportunity to appear to present our views on U.S. international competitiveness in electronics.

I, too, have a rather lengthy prepared statement and I will attempt to go through and highlight those items that are some key concern.

Mr. BINGHAM. Without objection, your full statement will appear in the record and we appreciate your giving us the highlights.

Mr. McCLOSKEY. U.S. electronics are competitive. Witness the figures given on the first page of our written statement. In 1981 production was bigger than ever; exports exceeded imports; there is an electronics trade surplus. Such is the overall picture.

However, within the electronic industries, some are faring less well than others. The consumer electronics industry and the electronic components industry both have trade deficit. The industrial electronics industry and the communications equipment industry, on the other hand, have a trade surplus. Although the overall picture still looks positive, our ratio of exports to total sales has been declining. Five years ago, it was over 25 percent; today, it is under 20 percent.

EXPORT DISINCENTIVES

On page 2 of our written statement begins our commentary on the export disincentives. It covers the three disincentives which most limit our international competitiveness today: export controls; antitrust regulations; and the Foreign Corrupt Practices Act.

Under export controls, we point out two provisions of the Export Administration Act of 1979 which have not yet been put into effect: Section 5(g) on the indexing of parameters of controlled commodities; and section 5(f) on the assessment of foreign availability. We feel that the administration should be asked when it intends to put them into effect.

As to the militarily critical technologies, we can report that our members continue to have grave concerns over the ability of the MCTL to deprive the Soviets of high technology without also creating restraints on such trade with the free world.

Technology transfer is something which responsible companies control internally and strenuously. Proprietary technology is their lifeblood. Accordingly, in our statement, EIA is proposing an exporter certification program. It is designed for companies that have demonstrated the effectiveness of their internal controls.

On page 5, we express considerable concern about the use of foreign policy controls on exports to certain countries. EIA now recommends controlling imports from the same countries, as well. If economic sanctions on a given country are justified, we question the wisdom of paying them for imports when they are prevented from paying us for exports. When the Export Administration Act comes up for renewal next year, we should all take a new look at it. Exactly what should an export control system for the eighties be designed to accomplish?

Now, on page 6, we turn to the disincentive character of anti-trust regulations.

Mr. BINGHAM. Since that is not within our jurisdiction, I suggest you pass on to the next section. That is a matter for the Judiciary Committee.

Mr. McCLOSKEY. The only reason it was brought up here is that it really has to do with competitiveness. Foreign countries have taken a much more organized approach toward research and development and, in fact, have encouraged companies to get together to do research. In the case of Japan, that cooperation is well known and documented. In the United States, we are unable to do that because of antitrust laws, at least perceived antitrust laws. The legislation that we are referring to only allows companies to do this with some certainty by providing a mechanism with the Justice Department where they could get a certificate.

Mr. BINGHAM. We are now in the process of a conference on the Export Trading Company Act which does make some changes in the antitrust laws.

Mr. McCLOSKEY. We are most appreciative.

Mr. BINGHAM. But while we are interested in the problems, there is nothing this subcommittee or the Foreign Affairs Committee can do about it because it is not within our jurisdiction.

Mr. McCLOSKEY. I understand that, and I think they are taking some of the provisions that you included in the Export Trading Company Act as a part of the antitrust immunity, similar to what you did. I know you and Congressman Bonker and the rest of the members of the subcommittee were very helpful on that legislation and we are most appreciative.

As to the Foreign Corrupt Practices Act, we recommend House action on an amending bill that has already passed the Senate. It

was referred to the Committee on Energy and Commerce last year. Your help is needed to move this legislation, too.

EXPORT PROMOTION

On page 8, our statement takes up export promotion. The best way to increase exports is decrease export disincentives. You have just heard our recommendations in that regard.

The next best way is to induce foreign governments to stop intervening in the free market system. So long as certain nations support selected industries and subsidize exports, they are distorting the competitive process. The multilateral General Agreement on Tariffs and Trade, the GATT, upon which we count so heavily, is based on the premise of a freely competitive market system. Government intervention undermines that very premise.

Our own Export-Import Bank is confronted by the intervention of many foreign governments. Their export-financing institutions are prone to offer interest rates that are notably below market. This can be done only if subsidy makes up the difference.

So, please do not oblige our Export-Import Bank steadfastly to maintain market terms. Our credit terms of sale must be competitive, or else we cannot export.

DISC is another mechanism of export promotion, one of the very few incentives that American companies have for exporting. On page 9, we point out how DISC is being threatened by our trading partners' complaints under the GATT. They call it an improper subsidy.

We recommend that our Government conduct a study of comparative taxation. How much tax burden do other countries place on exports? How much tax burden is placed on ours? We are confident that our competitors will be found to bear much less than we do. Such a study would document our case for retaining DISC if at all possible. If DISC must be replaced, the same study would reinforce a proper demand for concessions by the complaining nations. They presently rebate some taxes and entirely forgive others on exports and foreign earnings.

The Commerce Department is heavily engaged in export promotion. You will see that EIA commends the newly organized U.S. Foreign Commercial Service. However, we feel that Commerce's program of trade missions, trade fairs, and export seminars is of limited commercial value to the electronics industry.

RECIPROCAL OPPORTUNITIES

Pages 11 to 13 contain our views on reciprocal opportunities. We see the need for more negotiations covering trade in high-technology products. In the telecommunications sector, for instance, access for U.S. equipment into Japanese and the European markets has not materialized.

For American companies to invest abroad is a proven method of boosting exports from here. Yet, other countries are imposing exceptional conditions on foreign investors. We ask for "national treatment." In matters of investment, our companies should be treated the same as theirs. That surely is the case in the United States.

We oppose the performance requirements now imposed on certain foreign investors by Mexico, Brazil, Korea, and others. First, they require 70 to 80 percent local content in selected products sold in their country. That closes down on importation, forcing manufacture to occur there instead of here. Then they require foreign-owned manufacturing facilities to export as much as they make for domestic consumption. Those mandatory exports, in most cases, find their way into the United States. Why? Simply because ours is the world's biggest market and the United States gives them open access to our marketplace.

Meanwhile, here in the United States, legislation has been introduced that would require 90 percent domestic content in motor vehicles sold in this country. We cannot help but observe similarity with the 70 to 80 percent local content requirements to which we object in other countries.

Chairman Bingham and members of the subcommittee, I would be pleased to answer your questions.

[Mr. McCloskey's prepared statement follows:]

PREPARED STATEMENT OF PETER F. McCLOSKEY, PRESIDENT, ELECTRONIC INDUSTRIES
ASSOCIATION

I am Peter F. McCloskey, President of the Electronic Industries Association (EIA). We are grateful to have the opportunity to present our views today on "U.S. International Competitiveness: ELECTRONICS."

EIA, a Washington-based trade association, represents some 400 American companies of all sizes, ranging from small single-product businesses to large multinational corporations. They are variously involved in the design, manufacture and sale of electronic components, equipment and systems. These products are marketed for governmental, industrial and consumer use.

Electronics manufacturing directly employed 1.6 million Americans in 1981. Of these jobs, at least 600,000 are tied to exports.

In 1981, U.S. factory sales of electronic products were \$114 billion, of which over \$23 billion was exported. That figure would be even higher if the electronic content in such equipment as airplanes and machine tools were separately identified.

In the same year, the imports of electronic products were just over \$19 billion, so that our sector produced a trade SURPLUS of over \$4 billion... while the nation suffered a trade deficit of \$27 billion.

It must be stated at the outset that "U.S. Electronics" are competitive. Witness the figures just given. 1981 production was bigger than ever; exports exceeded imports; there is an electronics trade surplus. Such is the overall picture.

However, within the electronic industries, some are faring less well than others. CONSUMER electronics have been in trade deficit for some time; last year, imports exceeded exports by \$6.3 billion. Here, we are talking of TV sets, radio receivers, and other products used by the general public.

Electronic COMPONENTS...including semiconductors, electronic tubes, capacitors, resistors, and other parts...have until recent years been generators of trade surplus. But, 1981 imports exceeded exports by \$959 million.

The INDUSTRIAL electronics industry...including computers and instruments ...and the COMMUNICATIONS equipment industry generated enough trade surplus to offset the others.

Although the overall picture still looks positive, our ratio of exports to total sales has been declining. Five years ago, it was over 25%; today, it is under 20%. Five years ago, imports were \$10 billion; today, they are \$20 billion.

U.S. Electronics are less competitive, and certain other countries are more competitive, than they used to be. Japan and other industrialized nations are strengthening their electronic industries. Several developing countries are also strengthening theirs; Korea and Taiwan have become very competitive.

A. EXPORT DISINCENTIVES

To the extent that U.S. manufacturers are prevented from exporting their products -- or from exporting them on competitive terms -- they are absent from the competition. Customers in the world market simply turn to alternative sources. The Federal Government effectively prevents U.S. exporters from realizing a good deal of foreign business by imposing unilateral constraints that other countries do not impose on their exporters.

These constraints have been in place for a number of years and have come to be known as export disincentives. The most important of these are discussed below.

A.1. Export Controls

EIA would like to express its appreciation to members of the Subcommittee

and particularly to you, Chairman Bingham, for your efforts in drafting and passing the Export Administration Act of 1979. We feel it is a fine piece of legislation. However, we would like to call your attention to some areas that have not been implemented, or that need fine tuning. We would also like to suggest some thoughts for the future.

Some provisions of the law have not been implemented by either the previous or the present Administrations, for reasons that are unknown to us. Specifically, we refer to Section 5(g) which relates to the indexing of controlled commodity parameters, and to Section 5(f) which relates to the creation of a foreign availability review system. We feel the Administration should be asked when these parts of the law will be implemented.

We would like to add that Section 4(a)(2) is virtually unimplemented, as is evidenced by inordinate delays in processing the Qualified General Licenses authorized under its provisions. We should point out that the processing delays reported to us appear to have been created by the Defense Department, not by the Department of Commerce. It takes so long to obtain a Qualified General License that most exporters have opted not to utilize this provision.

EIA completely agrees with the need to control exports for National Security reasons. However, we are concerned that...in the zeal coming from some quarters to place controls on commodities destined for the USSR and other Warsaw Pact countries...our closest allies and trading partners will be caught in a maze of U.S. bureaucratic procedures that they will come to regard the United States as the "supplier of last resort." This, coming at a time when we need all the business we can get, will hardly help to correct our own domestic economic problems.

In the Act, Congress directed the Secretary of Defense to create a list of Militarily Critical Technologies. Our members continue to have grave concerns

over the ability of the MCTL to deprive the Soviets of high technology without also creating restraints on such trade with the free world.

We firmly believe that our member companies, all of which are in high technology business, exert a greater degree of internal control on the transfer of their technologies than Government could ever devise. Such control is absolutely necessary for a company when technology is its life's blood. This should be taken into account.

We are not so naive as to believe that all businessmen protect their technologies or refrain from selling them illegally to our adversaries; these people should be apprehended and prosecuted to the fullest extent of the law. Nevertheless, the regulatory and enforcement effort must be prevented from harassing the honest, lest it become an export disincentive.

Therefore, we would like to propose that an exporter certification program be introduced for those companies which can demonstrate a high degree of internal control on technology transfer and product exportation. Under such program, these companies would not be required to obtain export licenses for any of the following transactions:

1. Intra-company sales where product is shipped within the free world totally under the control of the U.S. parent company.
2. To consignees in COCOM nations, Austral¹, New Zealand...and in countries with which the Department of Defense has authorized technology transfers through Memoranda of Understanding, Memoranda of Agreement or other agreements entailing Offset or Coproduction. Certainly, if the Department of Defense has signed such an agreement, it would have confirmed the country's ability to control the diversion of critical goods and technologies.
3. Re-exports by the original exporter or its subsidiaries between any

of the countries just mentioned. In the two foregoing types of transactions, the exports are accounted for on Export Declarations, required for all shipments of \$500 or more. Re-exports could be reported after the fact under a separate reporting procedure.

Perhaps the most onerous controls for our members are those imposed under the Foreign Policy section of the Act. We support the need for the President to set foreign policy. He must have the necessary means to implement it and to fulfill our international obligations. However, we feel that use of trade as an instrument of foreign policy must be sparing and judicious; it should not be for transitory political considerations. Furthermore, foreign policy export controls that are imposed to fulfill our international obligations should not exceed the sanctions agreed to multilaterally. In this era of increased technological advancement and competitiveness, experience has shown that it is economically counterproductive, and does nothing toward advancing global respect for the United States, to impose sanctions over and above those agreed upon by other nations as well as our own.

In cases where it is decided to impose economic sanctions unilaterally against a country, we question the wisdom of controlling exports without considering a concurrent controlling of imports from that country.

We applaud the criteria, outlined in Section 6(b), that must be considered by the President when imposing, expanding, or extending foreign policy controls. However, we feel that the results of evaluation under these criteria have not been given sufficient weight when reaching a decision on whether to impose, expand, or extend the controls.

The consultation with industry, provided in Section 6(c), has been less than ideal; little or no time is given for industry to respond. We feel that consultation with industry should be the joint responsibility of the Secretary

of Commerce and the Secretary of State.

We would like to see the processing times outlined in Section 10 of the Act shortened by one-half. We know this could be done through modern management methods and paperwork reduction. In line with this thought, we feel that the Commerce Department and the primary consultative Departments of Defense and State should have a computer network devoted to keeping track of license applications, past decisions, and management functions. The Congress should appropriate the necessary funds for this project.

Our members feel that, when the Act comes up for renewal, we as a nation should look at what we expect export controls to accomplish in the mid-1980's and, then, should proceed to sharpen the present Act accordingly. The Executive Branch should, when promulgating regulations under the Act, be instructed to confine itself to regulations which are necessary and enforceable, and to frame them in understandable language.

A.2.a. COOPERATIVE (JOINT) R&D

U.S. international competitiveness is, of course, critically dependent upon the quality and amount of research and development (R&D) work done by American companies. Whereas U.S. industrial products are seldom the least expensive, they are often the best in performance. The margin of technological superiority in United States electronic products is the ingredient that makes them competitive.

R&D, however, tends to be a high-risk activity. In addition, our foreign competitors have significant tax, subsidy, and government guidance programs to support their R&D efforts. In the U.S., the Economic Recovery Tax Act of 1981 represented an important step towards reducing R&D risk and moving the U.S. closer to a position of equality in competing with other countries.

There is another measure, however, which would be highly useful, and that is to create a more favorable climate for cooperative R&D undertaken jointly by separate companies. Legislation which would help create such a climate was recently introduced by Congressmen Don Edwards and Henry Hyde with 30 co-sponsors as H.R.6262, the Joint Research Act of 1982. A companion bill has been introduced in the Senate. This legislation would encourage high technology firms to engage in joint research by authorizing the Department of Justice to issue certificates authorizing such research in cases where the Attorney General determines that there is not likely to be a violation of antitrust laws. The certificate would provide complete immunity from criminal antitrust actions and reduce damages in civil suits from treble to single damages. I hope that members of this Subcommittee will give H.R.6262 their support.

A.2.b. EXPORT TRADING COMPANIES

We are very gratified that the House of Representatives has acted favorably on the Export Trading Company legislation, and look forward to its early approval by Congress and the President. We want to thank Chairman Bingham, Congressman Bonker, and the other members of this Subcommittee for their great help in moving this legislation towards enactment.

A.3. FOREIGN CORRUPT PRACTICES ACT

While it aims at a worthwhile objective, the experience of companies operating under the Foreign Corrupt Practices Act since its enactment in 1977 has shown it to be deficient in several important respects. The wording of the Act does not allow for clear interpretation in certain areas, so that companies -- to be on the safe side -- do not even try to pursue certain foreign business opportunities for fear of violating the law. The cost to U.S. companies of conforming with the law is high, and no progress has been made toward getting our foreign competitors to adhere to a code that is like our legislation.

Following several years of careful research and drafting, the Senate last year approved a revision of the Act which would go far towards removing its ambiguities and enable U.S. firms -- while not violating ethical standards -- to operate more effectively abroad. The Senate bill, S.708, the Business Accounting and Foreign Trade Simplification Act, deserves careful consideration.

We strongly urge that the House Committee on Energy and Commerce, to which action on this legislation was referred last year, take prompt action toward reporting out a bill so that Congress will have opportunity to act on this important matter before it adjourns this year.

B. EXPORT PROMOTION

EIA thinks that export promotion is primarily the responsibility of the private sector. We view the role of governments as that of creating an environment in which private firms can effectively compete internationally. This international competition should be free, to the maximum extent possible, from domestic and foreign government influence, but conducted on the basis of fairness, so that U.S. companies are treated basically the same as foreign companies in all respects.

Within this context, we could call attention to the following points.

B.1. EXPORT-IMPORT BANK

The U.S. should continue vigorously to seek all countries' agreement to abandon government subsidization of export financing. Until that goal is reached the U.S. government must ensure that U.S. companies are not disadvantaged in their export activities by comparatively greater export finance subsidies provided to foreign companies by their governments.

This means that Congress should require and enable the Export-Import Bank to meet the terms and conditions being offered by foreign government export

financing agencies.

It would be particularly helpful in enabling Congress to see this issue more clearly if appropriations for the Export-Import Bank were removed from the U.S. Foreign Aid budget and examined separately. The Export-Import Bank is not a foreign-aid institution; its purpose is to support U.S. exports, and, unlike the Foreign Aid program, it has tended throughout its history to return a profit to the U.S. Government. The Bank should be judged on criteria far different from any Aid program, so we recommend that it be removed from the Foreign Aid budget.

In connection with the problem of meeting foreign competition in export financing, we also recognize that, in some instances, it might be more advantageous for the U.S. Government to countervail foreign export subsidy actions -- as it now has authority to do -- rather than to match those subsidies with Export-Import Bank financing. In such event, countervailing action should be pursued vigorously and promptly.

At present, the Export-Import Bank does not offer adequate programs to support smaller transactions; we urge that this deficiency be remedied, particularly to meet the needs of smaller exporting units.

Finally, I would like to call attention to a study being undertaken by the President's Export Council to determine the inter-relationship and effectiveness of all U.S. exporting financing programs, including the Export-Import Bank, the Commodity Credit Corporation, and the Foreign Military Sales program. We hope that this study, along with the considerations mentioned above, will be given careful attention when the Export-Import Bank legislation comes up for renewal in 1983.

B.2. DOMESTIC INTERNATIONAL SALES CORPORATION (DISC)

The DISC represents a relatively small step in the direction of equalizing U.S. taxes on the export income of U.S. firms compared with the taxes imposed by most foreign countries on the export income of their firms. Nevertheless, the Administration appears recently to have reached the conclusion that the United States must abandon the DISC because of objections by other members of the GATT, who contend that the manner in which DISC operates makes it incompatible with GATT rules.

EIA strongly urges that, before designing a substitute for DISC which would make it GATT-compatible, Congress and the Administration carefully and comprehensively study the tax burden which foreign countries impose on the export income of their companies, and compare it with the tax burden imposed on U.S. export income. As a result of such a study, all parties -- the U.S. Government and U.S. firms and their counterparts abroad -- would realize the extent to which U.S. taxation of exports operates to the disadvantage of U.S. exporters, compared with their foreign competitors.

EIA strongly urges that any substitute legislation to be put into place for DISC be designed to equalize the tax burden as between U.S. and foreign countries. The new legislation should also be relatively simple, so that small companies and Export Trading Companies can readily make use of it. And it should provide for the exemption from U.S. tax of the DISC-deferred taxes that have accumulated under the present DISC law. It would be grossly unfair to U.S. companies to tax these past benefits under any formula, in light of the advantages over U.S. firms which foreign companies have enjoyed beginning well before DISC was enacted.

B.3. DEPARTMENT OF COMMERCE PROGRAMS

EIA considers that the newly organized Foreign Commercial Service is doing

good work; we recognize the improvements that have been made in the Service and support the Department's program for continued improvement.

EIA is particularly aware of the Service's work in reporting invitations-to-bid on foreign government procurements, because many of these bid invitations are for electronic equipment. The only problem here is that our companies frequently do not have adequate time to respond to the bid, because the news of the invitation reaches them so shortly before the bid deadlines. If possible, we would appreciate early advice from the Foreign Commercial Service that a bid invitation is being prepared. Many of our companies have sales representatives abroad, and with early advice these representatives can follow up promptly with the relevant government office.

As regards the Department's programs of trade missions, trade fairs, and export seminars, we consider these of relatively small commercial value. Private sector firms are in a position to organize these activities where demand for them exists.

Finally, it should be mentioned that the Department of Commerce can perform a useful service by strengthening its programs to make the other Executive Branch agencies, Congress and the general public more aware of the great importance of exports to the U.S. economy. A number of private companies have such programs; Government and the private sector might beneficially work together to support each other's effort.

C. RECIPROCAL OPPORTUNITIES FOR TRADE IN GOODS AND SERVICES AND FOR FOREIGN INVESTMENT

C.1. HIGH TECHNOLOGY NEGOTIATIONS

EIA played a significant role in the negotiations with Japan's Nippon Telegraph and Telephone Corporation (NTT) which led to the December 1980 agreement to open NTT procurement to U.S. suppliers. The text of the NTT agreement is

complex and, because of the heavy reliance on good faith for its implementation, many are skeptical that it will effectively increase U.S. sales to Japan. EIA urges, therefore, that the U.S. Government secure a steady flow of information on such sales so that there will be a solid statistical base upon which to judge the effectiveness of the agreement.

EIA also favors an effort by the U.S. Government to have European PTT organizations open their procurement to foreign sources. This could be accomplished as a result of bilateral agreements with the U.S. as in the case of Japan, or their procurement could be made subject to the GATT Government Procurement Code.

C.2. FOREIGN INVESTMENT

EIA fully supports U.S. Government efforts to eliminate foreign barriers to investment. U.S. companies should be able to make investments in the countries of our trading partners, and our subsidiaries and affiliates operating abroad should be able to do business there on the same basis as companies owned by the nationals of those countries. In this latter connection, we would hope that our foreign subsidiaries and affiliates could come to have the same degree of participation in foreign government regulatory processes as we allow to foreign-owned companies in the United States.

I would like to stress here that the effectiveness of U.S. foreign investment -- as well as of U.S. export activity -- is significantly influenced by the relevant tax burden. The business community has long attempted to educate our Government on the need to ensure that U.S. companies are not burdened with heavier taxes on foreign investments than are foreign companies. We still find it necessary to argue the case. Important elements in both houses of Congress simply do not understand that U.S. firms, to be competitive, must get tax treatment equal to that afforded foreign companies by their govern-

ments. We hope that members of this Subcommittee will do what they can to educate their colleagues on this essential point.

C.3. OTHER FORMS OF FOREIGN GOVERNMENT INTERVENTION

In recent years, new forms of foreign government intervention have created important obstacles to the competitiveness of U.S. firms, and have raised new challenges to the international economic system as sanctioned by GATT. Examples are the Performance Requirements imposed on foreign investment by countries such as Mexico, Brazil, and Canada; industrial policies as applied in Japan; and heavy "Offset" or countertrade requirements by countries buying U.S. military equipment. These practices represent severe challenges to U.S. companies and to our national interest.

We urge this Subcommittee to give these forms of foreign government intervention intensive study with a view toward determining how an essentially private enterprise economy, like that of the United States, can compete with foreign economies that are increasingly permeated with governmental planning for industry and support for selected sectors.

In this connection, we observe that here in the United States, a proposal has been made to impose a requirement for 90% Domestic Content in Motor Vehicles sold in this country. EIA has consistently opposed requirements by other countries for "local content" of this order of magnitude.

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Chairman Bingham and members of the Subcommittee, this concludes our prepared Statement. I would be pleased to answer, if I can, any questions you might have.

Mr. BINGHAM. Thank you very much, Mr. McCloskey. I recognize Mr. Bonker.

CHALLENGE AND COMPETITION OF HIGH TECHNOLOGY

Mr. BONKER. I want to commend the chairman for conducting these timely hearings. The same issue was on the front cover of Newsweek this past week. I don't know if anyone saw it, but with respect to high technology, the challenge and the competition, the article notes that the stakes are enormous. Technology will set the economic agenda in the developed countries for the remainder of the century and beyond.

Unless U.S. and European firms rally to the challenge, the prosperity and the jobs that flow from the new industrial revolution will almost certainly go to Asian giants, warns Julian Agreser, president of the East Asian Consulting Group. The technological battle with the Japanese is really an industrial equivalent to the East-West arms race.

That is a pretty strong statement about the competitive nature of your industry and these hearings I think will highlight at least those concerns as they relate to Government policy. When I look at what you have said this afternoon, Government policies in many areas inhibit our competitive position. There are many examples: the Export Administration Act, FCPA, the possible removal of DISC, the lack of more effective action on bringing down trade barriers, the general nature of the business, as well as a lack of trained manpower to meet the challenge.

I read a study done in California that this year there will be 14,000 new graduates in computer science and related areas and 62,000 new jobs or new positions. We also lack effective trade promotion in certain areas and overall, we lack industrial targeting similar to what the Japanese do.

It looks like there is a whole host of issues related to your industry that affect your position in the world market. So we could pass the Export Administration Act, or we could modify the FCPA or we could protect DISC, but if we are really going to be effective and competitive, we are going to have to do a lot of things.

Has there been any effort within the industry to develop something of a package that would address many of these problems and mobilize industry support to promote legislation that would achieve the goals that you have laid before the subcommittee this afternoon?

IMPORTANCE OF RESEARCH AND EDUCATION TO COMPETITIVENESS

Mr. McCloskey. I think the biggest example of that was last year when the associations that are represented here rallied behind the research and development issue in order to include in the Economic Recovery Act a provision whereby research and development expenditure would become eligible for a tax credit. I think that high technology industry depends on research and development; it also depends on the flow of manpower into engineering and scientific fields. It is generally recognized that the severity of the manpower problem has decreased in these recessionary times. But it is going to increase, once more, as soon as recovery

starts. The fundamental need for more technically qualified people isn't going to change.

Mr. BONKER. What happens if we are in the process of greatly reducing our commitment to educational excellence which necessarily is covered at local levels but is enhanced by Federal programs?

In my State, the legislature has increased tuition, which would double the cost of tuition in a 2-year period at the same time that most programs for student guaranteed loans and the like are being removed. The point is, if we are going to be competitive, we have to make an investment in the future. I don't know where the responsibilities lie but I do know we are not going to be competitive in a world market if we don't put forth the educational effort and invest in future generations of Americans so we can compete with our Japanese neighbors.

I think it applies not only to high technology where the emphasis now being placed but also to international language. If we are going to compete on an equal basis we are going to need businessmen and technicians who also are well-equipped to handle the cultural and language problems in other countries.

Mr. McCLOSKEY. I agree.

SHORTAGE OF TECHNICAL MANPOWER

Mr. RAGOSINE. This question of technical manpower is a very serious one. One of the reasons that there is a shortage of technical manpower is that the electronics industry has been so successful, it now offers graduates with a bachelor's degree a salary of \$24,000 to \$25,000 a year, therefore discouraging them from going on to get a doctoral degree and teaching at a university.

Some steps are being made to try to offset this. The American Electronics Association has set up an AEA foundation which has asked its member companies to put aside 3 percent of their R&D budget as a contribution to the university to endow chairs and to keep promising young people at the university so they go on and become faculty members and keep this going. But I recognize your comments on cutbacks on Federal support for education.

Mr. HENRIQUES. I might add one thing, there has been no omnibus approach to the multitude of problems that you have elaborated there, precisely for the reason that the chairman spoke to, Mr. McCloskey. We have talked to the Commerce Committee, we have talked to the Ways and Means Committee, we have talked to the Foreign Affairs Committee and so on but we had to take that segment that the committee's responsibility incorporates and do these things sort of piecemeal and I think among these four associations and the Semiconductor Industry Association unfortunately absent there has been a remarkable consistency in approach.

Mr. BONKER. I just might add that in part of my district, Tektronics and Hewlett-Packard recently located new facilities with an employment potential for each of them going up to 25,000. Since these two plant facilities are within a close proximity, in the future they would like to build a campus with a master's program in electronics and computer science. A lot of people come in at low level positions, but they have the potential to advance within the indus-

try. By creating a campus environment with new facilities, educational programs and the excellent management philosophies of both of those fine organizations, you are encouraging people to increase their skills. This would be a joint venture of the local universities and the electronics industries. It wouldn't be something borne by one or the other but more or less a joint venture.

Mr. Chairman, I am sorry I have to leave for another meeting because I find this an interesting subject. I want to commend you again for scheduling these hearings.

Mr. BINGHAM. Thank you.

Mr. Erdahl.

Mr. ERDAHL. Thank you very much, Mr. Chairman. As Mr. Bonker said, this certainly is an interesting, intriguing, and rather complicated subject for those of us who obviously are laymen in this area.

A couple of questions to the panel. One concerns the recent news of the sanctions that we have imposed upon our European allies as far as the pipeline construction in Eastern Europe is concerned. The other, with some modifications, concerns the grain deal and things about which we are all well aware.

There seems to be a mood in the country and in the Congress to try to insulate and isolate ourselves from the rest of the world. For awhile it was a rather strong and, I feel, an unfortunate feeling. If you would comment on these two areas as we look at free and fair trade dealing with high or low technology.

Anyone wish to volunteer observations on my comment?

OPPOSITION TO UNILATERAL CONTROLS

Mr. RAGOSINE. Without specifically talking about the gas pipeline because I don't think that really affects our industries, I think the electronic industry in general is against unilateral controls and the reason we are against unilateral controls is that we do not possess all the technology in the world.

If we impose controls on U.S. companies we often open markets, we provide opportunities for either our trading partners in COCOM, some of the nonaligned nations then begin to grab markets we would otherwise have.

Controls themselves serve no purpose, if the technologies are available elsewhere. You do not punish any potential adversary; they don't do anything except serve some symbolic value.

Mr. ERDAHL. My observation is they don't work; that is, to rather put it simply. Someone else want to comment on those areas?

Mr. McCLOSKEY. There is another problem that goes along with it. When you put foreign policy controls on exporting products, you throw into question the reputation of the United States as a dependable source of supply in the eyes of many countries. They have to think twice about whether or when they can get products from a country that uses political controls to restrict exports. They wonder whether to select our country as their source of supply when there is an alternative source that has never used such restrictions.

Mr. ERDAHL. I guess this betrays my position on the issue of the sanctions. Some of us have been involved in a counterproposal to what administration policies in this area are.

I have heard high-ranking administration people say they are trying to convince our European allies that the Soviets are not a reliable trading partner. It seems like some of our policies would cause them to question whether the United States is a reliable trading partner.

Thank you very much, Mr. Chairman.

Mr. BINGHAM. Thank you.

RECIPROCITY LEGISLATION

I would like to have a dialog among you gentlemen on some of the very points that you have made. If I understand you correctly, Mr. Ragsine and Mr. Lovett both supported in general the reciprocity legislation in the various forms it has been suggested, and Mr. Henriques was in opposition.

Mr. HENRIQUES. No, sir, I do not believe I said anything about it, but in the formal statement we comment that we do support the current bill in the Senate, absent Christmas-treeing, and we are afraid that reciprocal or sectoral balancing or anything like that, if that got added to it, it would destroy the effect of the bill, but we believe in free access both ways.

Mr. RAGOSINE. We are all in agreement on that.

Mr. BINGHAM. Mr. Lovett has taken various positions on pending legislation, and I would like to get reactions of others. For example, Mr. Lovett has indicated support for the High Technology Trading Act. The numbers you have do not quite correspond to the number I have in the Shannon bill, H.R. 6433, but in any event you say the main provisions of that act have been incorporated in S. 2094 and also in H.R. 6773 recently introduced by Mr. Frenzel.

Do any of you other gentlemen have comments on that subject?

Mr. RAGOSINE. AEA supports both bills. Again, absent the sectoral reciprocity, which I do not believe is contained in the current version of the bill.

Mr. BINGHAM. Absent what?

Mr. RAGOSINE. Sectoral reciprocity of saying, "If you ban our cars, we will ban your cars." I do not think we should be punitive in this way but depend on the GATT process negotiations for total openness of markets, trying to play tit for tat.

Mr. BINGHAM. This indicates my lack of familiarity with all the approaches to reciprocity, but you just said you were in favor of the reciprocity legislation.

Mr. RAGOSINE. Reciprocity is a slippery word. Reciprocity can mean in some context that you will reciprocate. If someone will not allow access to your computers, you will not allow access to their computers. Reciprocity can also mean an opening of markets. If our markets are open to their products, their markets should be open to our products. Reciprocity can also mean equal opportunity for investment. If we permit our companies——

Mr. BINGHAM. Of what type are you in favor?

Mr. RAGOSINE. I am in favor of the second side, not the tit-for-tat side which says, "If you close your market to our cars, we will close our market to your cars."

Mr. LOVETT. I think we are all in favor of the opening of markets rather than the closing of borders.

Mr. BINGHAM. Is this not opposite sides of the same coin?

Mr. LOVETT. Perhaps. Perhaps you have to have in your pocket as a negotiator the threat at least, or the poker chips, that you do not want to use—you may not end up using it, and hope you will never have to use it: A closing of borders, a raising of duties; because the other side will not cooperate but you use that threat to open some borders.

Mr. BINGHAM. Can you explain to me why the Canadians for example and I think also the Japanese, have indicated they would regard the adoption of reciprocity legislation by the United States as highly protectionist, a measure they would find objectionable?

Mr. LOVETT. I think it is again the hangup on the word itself rather than an examination of the difference between specific bills. I think some bills are protectionist in nature and some bills are clearly aimed at more open trade, more open markets.

SECTOR-BY-SECTOR NEGOTIATIONS

Mr. McCLOSKEY. I think that the trading fabric which GATT engendered over a long period of time did not take into consideration individual sector-by-sector negotiations. It was an overall economic benefit from one country where a certain amount of sales were opened up versus another. The tradeoffs are not necessarily balanced sector by sector. And so, the result comes with a lot of emotional baggage. First of all about the history of trade negotiations, and second, about redressing the inequities as we go forward.

In one segment of the electronics industry, the communications area, we have now the opening up of the U.S. market because of the Justice Department settlement of the AT&T suit. That and other things are going to open up that market very, very widely. At the same time, the markets in Japan and Western Europe have closed to the U.S. communications industry. So, that segment of industry is thinking about present inequities and saying, "I am not so sure we ought to be allowing wide access here when our access is prevented there." Some companies have not yet come to grips with that.

Mr. BINGHAM. Did not the final negotiations in the Tokyo Round, did they not come down to sector-by-sector negotiations?

Mr. McCLOSKEY. The specific issue of the Government Procurement Code and which entities would be covered under that code, did become almost a sector-by-sector negotiation. However, that had nothing to do with tariffs; it had to do with which particular Government entities would be open to tenders from foreign companies.

In the case of Nippon Telephone & Telegraph, special arrangements were made and a special bidding mechanism established so there would be an opening of the communications market in Japan, but there has been no significant progress in terms of actual sales there. Still to be determined is whether it was more lip service than reality.

UNENFORCED PROVISIONS OF THE EXPORT ADMINISTRATION ACT

Mr. BINGHAM. Mr. McCloskey, you made a number of comments on the administration of the Export Administration Act, with

which I find myself in very substantial agreement, on pages 3 to 6 of your statement. I think in fact the administration has done almost nothing about some of the points you have mentioned, indexing of controlled commodity parameters, creation of a foreign availability review system, the use of qualified general license procedure.

Have any of you been in touch with the Department of Commerce as to why they have not done any of these things?

Mr. McCLOSKEY. I personally have not. I know that our committees who deal with those points have been working very closely with the Commerce Department over a long period of time. They feel a certain sense of frustration that these intentions of the act have not been accomplished. I am not sure what reason is given by Commerce. These provisions were in place before the administration changed. The last administration as well as this administration had a chance to do something about them, but apparently chose not to follow through.

Mr. RAGOSINE. I might add it is easy to put the Department of Commerce in the hot seat. They are just a focal point for a whole interagency mechanism which does controlling of exports.

People in the Department of Commerce might be very sympathetic to indexing. People in the Department of Defense might not be so sympathetic. It is a little difficult to find out who is responsible.

Mr. BINGHAM. It is in the law.

Mr. RAGOSINE. It is in the law, yes. I think a friend of mine in the Government once said that "the devil is in detail," that it is not necessarily the law that governs but the regulations that are written and the people who enforce regulations.

Mr. LOVETT. In the particular example of our instruments which fall under a commodity control in the 4529(b) category, we have been trying for some time to get the Defense Department to go along with the concept that these instruments should not be controlled because, like washing machines and automobiles, they should be controlled for their purpose and not the fact they contain a microprocessor.

Mr. BINGHAM. That does make sense to me.

Mr. McCLOSKEY. On the question of one portion of that, apparently there were two studies commissioned by the Department of Commerce on the foreign availability provision and how it might be implemented, and there was substantial input from the private sector on how Commerce might implement it. That was a year or so ago, but no further progress is visible.

Mr. HENRIQUES. I think in addition to that there has been substantial industry input, but the Department of Commerce has not had the continued assurance of funds in order to implement and get something operating and continue to operate it. I think they had a \$2 million initial appropriation which was not continued.

Mr. BINGHAM. Mr. Erdahl mentions in these latest controls imposed following the declaration of martial law in Poland, current availability is out the window for consideration. That is ignored. I think the proposal, Mr. McCloskey, with respect to some sort of certification program is very interesting and certainly ought to be taken into account when the act comes up for renewal. I doubt

much could be done along those lines without substantial changes in the act.

You mention that not enough attention has been paid to the criteria that we outlined in section 6(b) for foreign policy controls. As I mentioned yesterday, those criteria were virtually ignored in the imposition of foreign policy controls last December and in June.

TRADE-IN SERVICES UNDER GATT

Do any of you have a judgment on H.R. 5519 by Mr. Florio, authorizing bringing services into the GATT?

Mr. McCLOSKEY. We are in favor of that.

Mr. RAGOSINE. We are all in favor.

Mr. BINGHAM. Both investment and service?

Mr. RAGOSINE. Yes.

Mr. LOVETT. Yes.

Mr. HENRIQUES. Yes.

Mr. McCLOSKEY. Yes.

Mr. BINGHAM. We hope to get through the markup on these various bills after the recess in September, and your views will be definitely taken into account.

GOALS OF INTERNATIONAL NEGOTIATIONS

Some of you have mentioned the importance you attribute to international negotiations on high-technology trade. What is it you hope to accomplish in this regard, and what should be our objective in those negotiations?

Mr. McCLOSKEY. One is equivalent market access. There, the high-technology areas are those targeted by most of the countries that do any targeting.

Mr. RAGOSINE. No equal opportunity for investment. In a number of markets now it is impossible to establish a subsidiary without having majority ownership of the host country. If you are in a business such as computers, big systems, you need a service-and-support establishment in the country in which you sell the product.

Mr. BINGHAM. It strikes me in neither of those cases is it peculiar to high technology.

Mr. RAGOSINE. To a certain degree. If you sell shoes, you do not need much followup, but if you sell a photospectrometer as Du Pont might sell, you need a serviceman, you need somebody to follow up, you need applications people to teach the customers how to do it. If you sell a computer system you need someone onsite who will be able to maintain the computer service, provide service, provide software support. In some of the equipment AMPLEX sells we need to have people onsite which we are not able to have now because foreign governments insist that they have majority ownership of the establishment.

Mr. BINGHAM. I am not sure I follow you there.

Mr. RAGOSINE. Things with high technical content require a high degree of technical support. Things with a low amount of technical content require very little technical support. In order to provide that support you have to have a presence in the country in which you sell the product.

Mr. BINGHAM. How is that presence interfered with?

Mr. RAGOSINE. The country says, "I will not allow you to set up a subsidiary" for example in Mexico, unless I have a Mexican national who is 51-percent owner of the subsidiary. It is not attractive to go down there and invest money and have 49 percent and no control.

Mr. BINGHAM. Does it require that you have a subsidiary to do that followup? The parent company cannot do it through contract arrangements?

Mr. RAGOSINE. You can do it through contract arrangements, but at a distance. It is much better to have people onsite where there are local nationals who know the language and the customs.

Mr. BINGHAM. So the obstacle there lies with the requirement having to do with foreign investment, really.

Mr. RAGOSINE. That is right.

Mr. HENRIQUES. And technical data. In many instances in addition to the foreign or majority ownership they want the proprietary data to become the property of that country, as opposed to remaining in the parent corporation.

Mr. BINGHAM. Is that the issue of technology transfer that you talked about in terms of the new economic order?

Mr. HENRIQUES. Yes, sir. In terms of international negotiations I think we could make the comment that we are supportive of the ministerial negotiations at the GATT level which will be coming up in November in both the area of investment and services, to make them equivalent to product.

DOD LICENSING

Mr. BINGHAM. You have indicated some views as to the appropriate role of the Department of Defense in the export licensing process. I bet you get more problems from the Department of Defense. Do you know of any way to resolve that problem?

For example, we have in a report that the GAO made the suggestion that the Department of Defense should conduct the initial analysis of applications for licenses to export goods and technology subject to national security control. GAO suggests this would shorten the license processing time because at present the Department of Commerce has 30 days to review an application before referring it to other agencies for review.

Mr. RAGOSINE. I have a suggestion. It is not apropos of what you just said.

The Department of Defense takes generally a very tough line toward the export of products and technology which they think will have any possible military significance to a potential adversary, whether the export be to an Eastern bloc country or the export be to a NATO country, because they always worry about leakage, reexport, and so on.

There needs to be a balancing voice in Government, which the Department of Commerce is not very good at, which will argue the other case, that the national security depends not only on military superiority, but depends also on our economic viability and superiority.

This other voice—I do not know who that voice might be—must argue the case that sometimes it is a good idea to open markets

and take a small risk of having technology leak rather than to shut the Iron Curtain in reverse, now, of having nothing go. You could make an argument do not ship grain because grain will feed soldiers.

Mr. BINGHAM. We hoped in the 1979 act we were shifting the burden of proof, so to speak, in that direction, but I am afraid it has not accomplished very much.

Mr. McCLOSKEY. Earlier this year there was a suggestion that research done in the universities ought to be cleared by national security agencies prior to it being initiated. Our basin of knowledge is the source of our national security, and if we do not have the free interchange of information in the United States and with the overseas subsidiaries of American companies, then we are going to be eroding that basin from which the defense security comes. So, we are caught on the horns of a dilemma.

Mr. HENRIQUES. There is a secondary economic effect, that in addition to the specific instance of that particular technology there is the question, if the military really needed substantial inputs of that technology, would there be an industrial base domestically to provide it, if we are not encouraged to be economically sound and healthy and competitive.

"UNREASONABLE TRADE PRACTICES"

Mr. BINGHAM. That last comment makes me pursue a question about the definitions of unreasonable trade practices used in the Danforth bill. Do you think those definitions are sufficiently precise? I gathered they used words such as "unreasonable," "justifiable," "discriminatory," and so on. I see Mr. Ragsine smiling.

Mr. RAGOSINE. Let me come back to the devil in the detail. The words sound fine, but it depends on who interprets the words. We have had agreements with trading partners in the past where we thought agreement had been reached, but their version of the meaning of the words was different than our meaning of the words.

Mr. BINGHAM. Is it important that the definition include denial of fair and equitable provision of adequate protection of intellectual property rights, bearing upon what you were saying about scientific advances, technological advances?

Mr. McCLOSKEY. Patents are the fundamental protection anyone has in the international marketplace. We have long felt you have to have a valid system in force, one which induces respect for each other's patents, if that is what you are referring to.

Mr. BINGHAM. I think that is what this refers to. It might be copyrights, also. You have been very patient, gentlemen.

Mr. Erdahl, have you any further questions?

Mr. ERDAHL. I have no further questions, but I would like to thank the panel for the information shared with us. I think this whole business of establishing commonsense and looking at the expansion of a responsible foreign trade is a great issue that faces our country and this Congress.

I want to commend you, Mr. Chairman, for giving the attention you have given to it in this hearing, and I am sure we are going to go on from here.

Mr. BINGHAM. Thank you.

Thank you very much, gentlemen.

The subcommittee stands adjourned.

[Whereupon, at 4:30 p.m., the subcommittee adjourned, subject to the call of the Chair.]

APPENDIX 1

U.S. INDUSTRIAL OUTLOOK 1981

DEPARTMENT OF COMMERCE

Aerospace

Aerospace shipments will hit an 11-year peak, level off, and then decline in 1981. Exports will reach \$18 billion, up 14 percent from 1980. In constant 1972 dollars, exports will increase only 6 percent, compared to a real gain of 13 percent in imports. Fuel, foreign competition, shared production programs, and U.S. export licensing policy are industry concerns.

The value of shipments¹ of complete aerospace vehicles is expected to total \$29.3 billion in 1981, 7 percent above the 1980 estimated value of \$27.5 billion. In constant 1972 dollars, the 1981 total is projected at \$14.1 billion, down 1 percent from the \$14.2 billion in constant dollars for 1980.

Aerospace shipments were expected to rise 22 percent in 1980 to \$56.9 billion and are forecast at \$61.8 billion in 1981. The shipment value increase for 1981 nets a decline in aircraft industry shipments, a slight increase in aircraft parts including engines, and a substantial increase in missiles. Industry value shipments for 1981, expressed in 1972 constant dollars, are projected at \$29.7 billion, a 1 percent increase over the \$29.5 billion estimated for 1980.

The value of aerospace exports in 1981 should reach \$18 billion, a 14 percent increase from the \$15.8 billion in 1980. This increase in foreign sales continues the recent trend towards more intensified exporting, evidenced by the 34 percent estimated increase from 1979 to 1980. Foreign customers will account for 75 percent of the large transport shipments in 1981, compared to the 60 percent average over the previous 3 years. Total aerospace exports in 1981 will account for 48 percent of full-time production-worker jobs, 183,000 of the estimated 380,000 production workers.

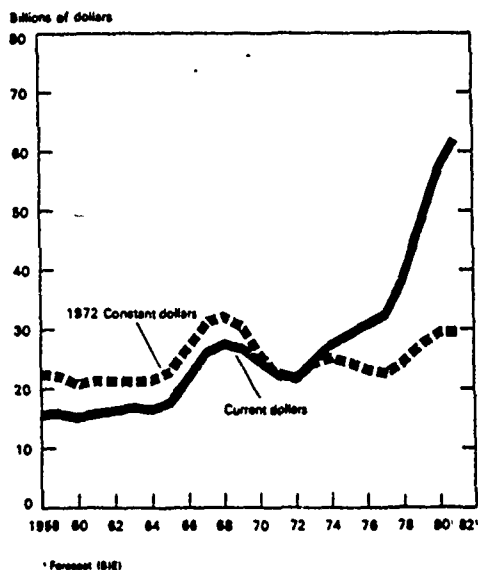
The value of aerospace imports in 1981 is forecast at \$3.8 billion; the projected trade surplus, \$14.2 billion. Aerospace imports for 1980 are estimated at

\$3.1 billion, a 94 percent rise from the \$1.6 billion of 1979. Largest import gains were in the helicopters, small aircraft, and aircraft engine sectors.

The 1980 estimated industry shipment value of \$56.9 billion, a record high, exceeds the \$46.5 billion estimated for 1979 by 22 percent. However, expressed in 1972 constant dollars, the value increased only 9 percent. Thus, the 1980 value, adjusted for inflation is \$29.5 billion, 8 percent below the 1968 peak year. The divergence in shipment levels is depicted in the accompanying chart.

For the identification of broad trends, the shipment values are combined for complete vehicles,

Aerospace Shipments in Current Dollars and 1972 Constant Dollars



¹ For purposes of this report, the aerospace industry includes those firms whose value of shipments and/or value of work done is classified under the following 1972 Standard Industrial Classification (SIC) numbers: 3721 Aircraft; 3724 Aircraft Engines and Engine Parts; 3728 Aircraft Equipment, n.e.c.; 3761 Guided Missiles and Space Vehicles; 3764 Space Propulsion Units and Parts; and 3769 Space Vehicle Equipment, n.e.c. Communications, navigation, and electronics equipment are included only as part of the aerospace vehicle, except for identifiable avionics exports, which are included in the export table.

components, parts, and related equipment. However, extensive duplication arising from shipments among establishments within the aerospace industry reduces the usefulness of the total figure for any detailed industry analysis.

New Orders Decline

In 1971 and 1972, aerospace industry shipments hit the low point in the 24-year period from 1958 to 1981 (see chart). As the industry started through the recovery cycle, some supplying companies dropped out of aerospace entirely. Many of the remaining companies failed to make the capital investments necessary to meet future product demand. The order backlog reached \$89.1 billion in September 1980, representing about 22 months of shipments.

Orders received by the U.S. aerospace industry averaged \$5.2 billion each month in the first 9 months of 1980 while shipments averaged \$4 billion a month. In August 1980, new orders were \$2.8 billion, 44 percent below the average for the first 8 months. Seasonally adjusted, the decline was 42 per-

1980 Profile

Aerospace Industry

SIC Code: 3721, 3724, 3728, 3761, 3764, 3769

Value of industry shipments (million \$) ...	56,875
Value added (million \$)	33,324
Total employment (000)	706
Number of establishments, total (1977)	1,274
Number of establishments with 20 employees or more (1977)	629
Exports as a percent of product shipments ..	29.5
Imports as a percent of apparent consumption ¹	7.6
Compound annual rate of change, 1975-80:	
Value of product shipments ²	14.5
Value of exports ²	15.2
Value of imports ²	33.0
Total employment	3.8

Major producing regions: Pacific, North Central, New England and Middle Atlantic

¹ Imports divided by product shipments plus imports minus exports.

² Rates of change based on current dollars.

Sources: Bureau of the Census; Bureau of Labor Statistics; and Bureau of Industrial Economics estimates.

cent, to \$3.2 billion, from the 1980 monthly average of \$5.5 billion. Seasonally adjusted, new orders bounced back to \$5.4 billion in September 1980, but remained slightly below the 1980 monthly average. Declining new orders, mainly for the high-value units with delivery in 18 months, will lessen the value of shipments in 1982.

The 1980 estimated value of aerospace shipments was \$29.5 billion in constant dollars, \$2.7 billion less than in the peak year 1968. Part of the lower 1980 shipment value resulted from the reduction of manufacturing capacity. In the peak year of 1968, the use of more than one production shift possibly accounted for the high value of shipments. However, neither of these reasons explains the \$2.7 billion difference, suggesting that capacity was under-utilized.

Large Transport Shipments Decline

Shipments of large transports (31 place and over) were estimated at 428 units in 1980, a 13 percent increase over the 378 units shipped in 1979. Unadjusted for inflation, the value of shipments rose 32 percent, from \$8.4 billion in 1979 to \$11.1 billion in 1980. Shipments in 1981 are expected to decline 8 percent in units to 392 and 5 percent in value to \$10.5 billion (see Table 1).

During 1982, a further decline is expected in shipments of U.S.-manufactured transports. In 1982, 334 units, value at \$10.6 billion, should be shipped. Currently, passenger and freight traffic growth is slowing worldwide. An estimated equivalent of 21 empty widebodies flew the Atlantic each day in summer 1980. Also, many relatively new large transports, including many widebody types, were available for purchase from current owners.

In 1979, transport manufacturers exported 201 (\$5 billion) of the 378 units produced (\$8.4 billion). Exports thus absorbed 53 percent of unit production and accounted for 60 percent of its value. Transport exports in 1980 were estimated at 262 units (\$7.4 billion), 61 percent of unit production and 67 percent of its value.

Exports of transports in 1981 are projected at 280 units valued at \$8 billion, up 7 percent in units and 8 percent in value over 1980.

The outlook for 1982 points to an 18 percent drop in units exports to 230 units. These exports will be valued at \$7.3 billion, a 9 percent decrease from 1980's transport exports.

General Aviation Remains Optimistic

General aviation (non-military and non-airline) aircraft manufacturers in 1980 are expected to ship 11,792 units, valued at \$2.5 billion. Despite this 29 percent decline in unit shipments, value will increase

8 percent over 1979. Single-engine shipments were expected to drop from 13,044 units in 1979 to 8,500 units in 1980. This 35 percent drop would exceed the decline that had been forecast. Shipments of multi-engine general aviation aircraft were expected to decline 5 percent in 1980 to 3,292 units, valued at \$2.1 billion, a 17 percent value rise.

Shipments of 8,200 single-engine aircraft, valued at \$467 million, are forecast for 1981, down 4 percent in units and 6 percent in value from 1980. Rising operating costs, particularly fuel prices, are deterring private individuals from buying either single-engine or light twin-engine aircraft.

The larger multi-engine turboprop and turbojet aircraft market remains excellent. Business jet sales for the first half of 1980, compared to the same period in 1979, were 11 percent higher; and turboprop sales, 16 percent higher. Exports of the business-type multi-engine turbine powered aircraft in the first 8 months of 1980 amounted to 277 units valued at \$287 million, 11 percent ahead in units and 46 percent higher in value than the same period in 1979.

Exports of general aviation aircraft in 1980 were estimated at 3,290 units valued at \$647.8 million, up, respectively 16 percent and 24 percent, over 1979 (see Table 2). Exports are expected to reach 3,950 units in 1981 with a value of \$829 million, up 20 percent in units and 28 percent in value over 1980. General aviation exports in 1980 were expected to account for an estimated 28 percent of both unit shipments and their value.

General aviation shipments are expected to increase very slowly in the near term, influenced by the generally unfavorable economic conditions for increased aviation activity. The General Aviation Manufacturers Association predicts an increase, however, in the U.S. general aviation fleet from 200,000 aircraft in 1980 to 300,000 by 1990. The largest percentage increases are anticipated in turboprops, from 3,700 units in 1980 to 7,300 by 1990, and executive jets, from 2,600 to 6,000 by 1990.

Foreign competitors well appreciate the market potential of the United States, which accounts for three-fourths of the world's general aviation aircraft. The Japanese are producing a new business jet aimed at the U.S. market, while the United Kingdom, France, and Israel hope to increase their market share. Canada is pinning its hopes on the Challenger and their line of commuter aircraft.

U.S. imports of general aviation aircraft, especially in the 10,000 to 33,000 pound empty weight category, rose 29 percent in units and 86 percent in value in the first 9 months of 1980 compared to the same period in 1979. Imports from France contributed particularly to the increase with 29 aircraft valued at \$104 million, representing an 86 percent increase in value and a 28 percent increase in units. During the

Table 1. Shipments of Aerospace Vehicles and Equipment

(in millions of dollars except as noted)

	1975		1976		1977		1978*	
	Number of units	Value	Number of units	Value	Number of units	Value	Number of units	Value
Aircraft and aircraft services, total ^a	—	11,223.0	—	11,427.0	—	12,052.8	—	15,859.6
Complete aircraft, total	16,825	9,017.3	18,017	8,943.3	19,853	9,285.7	19,987	12,366.8
Complete military aircraft	1,739	4,049.7	1,376	4,296.4	1,343	4,579.6	1,105	5,836.0
Complete civilian aircraft	15,086	4,967.6	16,641	4,646.8	18,508	4,706.1	18,882	6,530.8
Fixed-wing, total	14,248	4,701.9	15,820	4,323.4	17,524	4,354.4	18,049	6,178.4
Multi-engine	2,860	4,374.0	2,885	3,921.1	2,941	3,845.4	3,667	5,617.5
30-place and under	2,575	3,67.6	2,668	766.1	2,782	1,173.4	3,420	1,331.5
31-place and over	285	4,006.3	217	3,155.0	159	2,672.0	247	4,286.0
Single engine	11,388	328.0	12,935	402.3	14,583	508.9	14,382	560.9
Rotary-wing, total	838	265.6	821	323.5	984	351.7	833	352.4
Aircraft services, total ^a	—	2,205.7	—	2,483.7	—	2,767.1	—	3,492.8
Modifications, conversion, and overhaul	—	516.5	—	754.9	—	778.9	—	797.8
Other aeronautical services for aircraft	—	1,689.2	—	1,728.8	—	1,988.2	—	2,695.1
Aircraft engines and engines parts, total	—	5,375.8	—	5,788.5	—	5,924.7	—	7,131.0
Aircraft engines for U.S. military customers	—	801.3	—	1,128.2	—	1,047.9	—	815.8
Aircraft engines for other than U.S. military customers	—	991.9	—	873.9	—	937.0	—	1,432.7
Aircraft engine parts including engines and parts, n.s.k.	—	2,032.8	—	2,186.3	—	2,308.5	—	2,779.9
Complete missile and space vehicle engines and engine parts ^a	—	907.2	—	880.7	—	930.1	—	1,123.8
Other aeronautical services on aircraft and missile engines	—	642.6	—	716.4	—	701.2	—	978.7
Aircraft propellers and propeller parts, total	—	90.3	—	87.4	—	108.7	—	119.4
Aircraft parts and auxiliary equipment, n.e.c.	—	4,752.1	—	5,014.1	—	5,652.8	—	5,984.9
Guided missiles and space vehicles, complete ^{a,b}	—	5,716.3	—	5,677.1	—	5,730.6	—	5,720.0
Complete missile systems (excluding propulsion)	—	3,992.0	—	3,997.6	—	3,990.4	—	4,004.0
Complete space vehicle systems (excluding propulsion)	—	1,724.3	—	1,679.5	—	1,740.2	—	1,716.0

^a = revised.^b Totals may not add due to rounding.

n.e.c. = not elsewhere classified.

n.s.k. = not specified by kind.

^c Estimated.^d Represents value of work done.^e Includes receipts for research and development and other services.^f Forecast.

Sources: Bureau of the Census; the Bureau of Industrial Economics

(BIE).

same period, the United Kingdom shipped 42 aircraft valued at \$78 million, up 31 percent in units and 34 percent in value.

Helicopter Manufacturers Optimistic

Helicopter operations appear to be the fastest growing segment of the world's air transportation system. Demand for helicopters is expected to reach \$10 billion in the next 10 years. Analysts estimate that the number of civil helicopters in the free world will equal military helicopters by 1985 and that the civil helicopter fleet will double by 1990 to 26,000 while the military units increase only 25 percent to 23,000.

U.S. manufacturers produced 1,040 civil helicopters in 1979, valued at \$469 million. Of these, 460 units valued at \$207 million were exported, 44 percent of both units and value. U.S. civil helicopter shipments for 1980 were estimated at 1,300 units, valued at \$726 million, a 25 percent increase in units and a 55 percent increase in value over 1979. Shipments of civil helicopters are projected to increase 15 percent in 1981 to 1,500 units with the value increasing 27 percent to \$921 million (Table 1).

U.S. helicopter manufacturers have substantial backlogs of orders for some models but find production difficult to expand because suppliers cannot speed up delivery of parts. The industry is encountering strong foreign competition, especially from the French U.S. sales and assembly subsidiary, Aerospatiale Helicopter Corporation. This French competitor has penetrated the U.S. domestic market as evidenced by the 114 units, valued at \$35 million, imported during the first 9 months of 1980. The French, possessing a family of helicopters, are expanding their sales to the United States and third country markets to the detriment of U.S. manufacturers. The first deliveries of the 90 French helicopters ordered by the U.S. Coast Guard are scheduled for 1982.

Employment to Level-Off

Total aerospace employment is forecast to level-off in 1981 at 707,000, a slight increase from the 706,000 estimated for 1980. This compares to the 7 percent and 12 percent increases recorded the 2 previous years. Fewer new jobs are expected for the air-

Table 1. Shipments (Continued)

(in millions of dollars except as noted)

	1979 ^a		1980 ^b		Percent change in 1979-80	1981 ^c		Percent change in 1980-81
	Number of units	Value	Number of units	Value		Number of units	Value	
Aircraft and aircraft services, total ^a	—	20,616.7	—	26,095.0	27	—	27,091.0	4
Complete aircraft, total	18,824	16,170.0	14,760	20,387.0	26	14,942	20,291.0	-1
Complete military aircraft	900	4,983.9	1,240	6,077.0	22	1,070	5,816.0	-4
Complete civilian aircraft	17,924	11,186.1	13,520	14,310.0	28	13,872	14,475.0	1
Fixed-wing, total	16,883	10,717.6	12,220	13,584.0	27	12,372	13,554.0	—
Multi-engine	3,839	10,164.5	3,720	13,142.0	29	4,172	13,086.7	—
30-place and under	3,461	1,772.2	3,292	2,077.0	17	3,780	2,555.0	23
31-place and over	378	8,392.3	428	11,065.0	32	392	10,531.7	-5
Single engine	13,044	553.1	8,500	442.0	-20	8,200	467.3	6
Rotary-wing, total	1,041	468.4	1,300	726.0	55	1,500	921.0	27
Aircraft services, total ^a	—	4,446.8	—	5,708.0	28	—	6,800.0	19
Modifications, conversion, and overhaul	—	1,111.7	—	1,527.0	37	—	2,138.0	40
Other aeronautical services for aircraft	—	3,335.0	—	4,181.0	25	—	4,662.0	12
Aircraft engines and engines parts, total	—	8,069.1	—	9,914.9	23	—	11,640.0	17
Aircraft engines for U.S. military customers	—	750.0	—	900.0	20	—	1,050.0	17
Aircraft engines for other than U.S. military customers	—	2,087.5	—	2,553.0	22	—	2,700.0	6
Aircraft engine parts including engines and parts, n.s.k.	—	2,702.6	—	3,404.9	26	—	3,950.0	16
Complete missile and space vehicle engines and engine parts ^a	—	1,349.0	—	1,727.0	28	—	2,400.0	41
Other aeronautical services on aircraft and missile engines	—	1,180.0	—	1,330.0	13	—	1,500.0	13
Aircraft propellers and propeller parts, total	—	121.2	—	116.0	-4	—	135.0	16
Aircraft parts and auxiliary equipment, n.e.c.	—	8,400.0	—	10,200.0	21	—	11,700.0	15
Guided missiles and space vehicles, complete ^{a,2}	—	6,200.0	—	7,100.0	15	—	9,050.0	27
Complete missile systems (excluding propulsion)	—	4,340.0	—	5,183.0	19	—	6,750.0	30
Complete space vehicle systems (excluding propulsion)	—	1,860.0	—	1,917.0	3	—	2,250.0	17

^a Revised.^b Totals may not add due to rounding.

n.e.c. = not elsewhere classified.

n.s.k. = not specified by kind.

^c Estimated.¹ Represents value of work done.² Includes receipts for research and development and other services.³ Forecast.

Sources: Bureau of the Census; the Bureau of Industrial Economics (BIE).

craft, aircraft engines, and parts industries in 1981 than were estimated for 1980. An 18 percent rise, however, is projected for employment in the missile and space industries in 1981.

Boeing's contract negotiations set the stage for Lockheed and McDonnell-Douglas in 1980 with agreement to a 13 percent wage increase over the 3-year life of the contracts. Union negotiations will remain active in 1981, with contracts for 43,200 workers scheduled to expire.

Negotiated contracts in 1980 incorporate a quarterly one cent cost-of-living raise for each .3 percent increase in the Consumer Price Index. This cost-of-living adjustment clause in many of the expired contracts increased the wage of the average worker by \$1.89 per hour over the 3-year period. This amounted to a cumulative increase of \$4,000 per year.

Aerospace Exports Continue to Increase

Aerospace exports are expected to reach \$15.8 billion in 1980, surpassing the 1979 total of \$11.8 billion by 34 percent. Of the export gains enjoyed by several aerospace sectors in 1980, the most pro-

nounced percentage increases were achieved in large transport aircraft and civil aircraft engines. Large transport aircraft exports in 1980 were estimated at \$7.4 billion, a 47 percent increase over 1979. Civil aircraft engine exports were expected to exceed those of 1979 by 44 percent (Table 2).

Aerospace exports for 1981 are projected to reach \$18 billion. This 14 percent increase over the \$15.8 billion estimated for 1980 will be caused principally, as in recent years, by the continued strength of exports of large transport aircraft expected to reach \$8 billion in 1981. Aerospace exports gains are projected for business, personal and utility aircraft, rotary wing aircraft, engine and engine parts, and aircraft parts.

Military aircraft exports for 1979 were 332 units, valued at \$838 million, a decline of 44 percent in units and 62 percent in value from the 589 units, valued at \$2.2 billion, exported in 1978. Military aircraft exports in the first 9 months of 1980 totaled 368 units, valued at \$548 million, a 50 percent increase in units but a 15 percent decline in value compared with 245 units, \$648 million, in the same period in 1979.

Table 2. U.S. Exports of Aerospace Vehicles and Equipment Revised 1980
(in millions of dollars except as noted) on page 11

Item	1976		1977		1978 ^a		1979 ^a		1980 ^a		1981 ^a	
	Number of units	Value	Number of units	Value	Number of units	Value of units	Number of units	Value of units	Number of units	Value of units	Number of units	Value
Aerospace vehicles and equipment, total ^b . . .	—	7,852.9	—	7,578.1	—	9,992.8	—	11,747.1	—	15,761.0	—	18,006.1
Civilian aircraft, total . . .	4,345	3,202.2	4,492	2,744.1	4,399	3,616.1	4,115	6,177.2	4,640	8,976.3	5,380	10,104.7
Business, personal and utility, new . . .	3,214	340.5	3,462	382.8	3,434	404.6	2,826	524.6	3,290	647.3	3,950	829.8
Rotary-wing, new . . .	315	113.4	321	105.5	348	155.7	459	206.6	520	293.2	630	300.0
Transport, new: . . .	—	—	—	—	—	—	—	—	—	—	—	—
Under 33,000 lbs., empty weight . . .	4	1.3	7	5.8	37	90.8	52	126.0	25	106.7	20	100.0
33,000 lbs. and over, empty weight . . .	157	2,460.5	101	1,935.9	111	2,549.5	201	5,015.0	262	7,385.7	280	8,044.7
Other new aircraft, n.s.c. . . .	83	2.6	124	.9	—	27.1	—	11.0	—	4.7	—	3.0
Used, rebuilt, and converted . . .	592	263.9	477	313.1	449	388.5	577	293.9	543	538.2	500	750.0
Military aircraft, total . . .	751	964.4	721	1,183.0	589	2,243.0	332	635.2	580	797.0	500	800.0
Aircraft engines and parts: . . .	—	—	—	—	—	—	—	—	—	—	—	—
Internal combustion, total . . .	—	235.7	—	191.4	—	214.4	—	236.0	—	281.6	—	342.4
Military, new or used . . .	347	8.2	222	7.1	124	1.9	175	3.7	66	2.8	50	2.4
Non-military, new . . .	2,344	25.2	2,479	22.1	2,343	30.1	2,346	36.0	2,060	28.5	2,000	30.0
Non-military, used . . .	954	15.7	1,053	15.1	1,388	16.4	1,575	16.2	1,300	17.8	1,100	16.0
Parts, n.s.c. . . .	—	184.6	—	147.0	—	166.1	—	178.1	—	232.5	—	314.0
Jet and gas turbine and parts . . .	—	745.4	—	741.1	—	900.4	—	1,155.7	—	1,585.5	—	2,135.0
Military, new or used . . .	421	57.9	327	64.1	393	59.2	329	61.2	320	68.5	300	73.0
Non-military, new or used . . .	743	212.8	647	195.9	908	230.6	996	323.2	1,270	473.4	1,400	602.0
Parts, n.s.c. . . .	—	474.6	—	481.0	—	610.6	—	771.3	—	1,043.9	—	1,460.8
Missile engines and parts . . .	—	16.0	—	11.0	—	27.0	—	31.4	—	21.5	—	30.0
Propellers and parts . . .	—	39.5	—	46.8	—	35.8	—	40.0	—	48.8	—	58.0
Landing gear and parts . . .	—	70.2	—	84.6	—	80.2	—	94.8	—	95.5	—	90.0
Aircraft parts and accessories, n.s.c. . . .	—	1,045.0	—	1,834.6	—	2,192.7	—	2,534.8	—	3,210.5	—	3,500.8
Guided missiles, components and rockets . . .	—	479.3	—	437.4	—	607.8	—	570.8	—	678.6	—	840.0
Avionics . . .	—	253.1	—	304.1	—	775.3	—	664.4	—	663.4	—	654.0

^a Estimated.
^b Forecast.
^c Data not comparable with 1977 or earlier because of description changes.
^d as revised.

n.s.c. = not elsewhere classified.
^e Total may not add due to rounding.
Source: Bureau of the Census. Estimates and forecasts by the Bureau of Industrial Economics.

Table 3. U.S. Imports of Aerospace Vehicles and Equipment Revised 1980
(in millions of dollars except as noted) on page 11

Item	1976		1977		1978		1979 ^a		1980 ^a		1981 ^a	
	Number of units	Value of units	Number of units	Value	Number of units	Value of units	Number of units	Value of units	Number of units	Value of units	Number of units	Value
Aerospace vehicles and equipment, total ^b . . .	—	575.3	—	729.7	—	907.0	—	1,621.4	—	3,089.3	—	3,746.9
Complete aircraft, total . . .	262	154.2	364	304.2	426	254.4	390	506.6	652	990.4	735	1,060.0
Civilian aircraft, total . . .	202	89.9	304	258.0	345	249.5	390	508.6	650	981.7	735	1,060.0
Under 10,000 lbs. empty weight, new . . .	55	26.3	74	27.8	140	45.4	91	37.7	158	98.6	160	100.0
10,000-33,000 lbs. empty weight, new . . .	30	40.8	48	80.7	50	101.4	102	222.8	140	413.0	160	480.0
Over 33,000 lbs. empty weight, new . . .	6	7.8	15	100.1	5	58.1	9	199.7	12	240.0	15	190.0
Rotary-wing, new . . .	42	4.4	56	18.1	78	28.0	91	21.6	240	64.3	300	90.0
Used, rebuilt, and converted . . .	69	10.6	111	31.3	92	16.7	97	26.8	100	167.8	130	200.0
Military aircraft, total . . .	60	64.3	60	50.2	61	4.9	—	—	—	—	—	—
Aircraft engines, total . . .	1,571	144.1	3,342	129.9	1,721	281.9	1,655	2,546.1	2,630	1,021.7	3,100	1,392.5
Piston-type, new . . .	32	.2	87	.3	35	.5	179	3.1	330	714.6	500	22.5
Turbo-jet and gas turbine, new . . .	950	119.6	1,405	89.4	1,272	263.1	1,476	304.0	2,300	695.9	2,600	935.0
Non-piston-type, n.s.c. . . .	589	24.3	1,850	40.2	414	18.3	—	2,239.0	—	311.2	—	435.0
Aircraft and spacecraft parts, n.s.c. . . .	—	275.4	—	289.1	—	348.2	—	564.2	—	872.5	—	1,000.0
Spacecraft . . .	—	—	—	—	—	—	—	—	—	—	—	—
Other . . .	—	1.4	—	2.6	—	2.5	—	2.6	—	3.0	—	3.4
Flight simulators . . .	—	—	—	—	—	—	—	—	—	17.9	—	34.0
Civil aircraft parts . . .	—	—	—	—	—	—	—	—	—	183.8	—	257.0

n.s.c. = not elsewhere specified.
^a as revised.
^b Totals may not add due to rounding.
^c Estimated.
^d As of 1980, piston engines include piston engine parts.
^e Forecast.
Source: Bureau of the Census. Estimates and forecasts by the Bureau of Industrial Economics.

^f Aircraft turbine engine parts were added to value calculations in 1979. Subtract \$218 million from this value to relate it to previous years.
^g Flight simulators and civil aircraft parts were added in 1980. Subtract \$201.7 million from the 1980 value and \$291 million from 1981 value to relate it to previous years.

The drop in military exports did not result from decreased world demand for military aircraft but rather from U.S. export restrictions. Uncertainties concerning U.S. export policy, which occasionally has prohibited shipment of "follow-on" units or of replacement parts, are inhibiting exports. Foreign suppliers are filling the voids thus created. A decline in military aircraft parts exports is expected as old shared military programs reach highest levels and new programs mature.

Aerospace Imports Increase Dramatically

The value of aerospace imports increased an estimated 94 percent to \$3.1 billion in 1980 from \$1.6 billion in 1979. Increases appeared in all sectors with greatest gains in the helicopter, small aircraft, and aircraft engine markets (Table 3).

Helicopter imports, \$22 million in 1979, rose an estimated 191 percent in 1980 to \$64 million. Helicopter imports are projected to reach 300 units

valued at \$90 million in 1981, up 25 percent and 41 percent, respectively over the estimated units and value of helicopter imports in 1980.

Deregulation of U.S. airlines is causing an influx of commuter aircraft as domestic airlines accelerate discontinuance of service to many cities. The smaller commuter airlines flying the routes have a limited choice of aircraft. U.S. manufacturers, slow to produce aircraft for commuter service, are awaiting pending changes in Federal Aviation Administration (FAA) regulations regarding the number of passengers and allowable weights for commuter aircraft.

The world commuter market will need an estimated 1,000 aircraft in 1980-85. The United States has in production only one commuter aircraft with seats for more than 15 passengers. Australia, Brazil, Canada, the Netherlands, Spain, and the United Kingdom all are producing commuter-type aircraft for 16 to 50 passengers. Due to rising numbers of imported commuter aircraft, total civil aircraft imports are projected to rise to 335 units, valued at \$770 million in 1981. The year-to-year increase in value would amount to 67 percent over the \$461 million (202 units) imported in 1979.

Operators' skepticism about the ability of U.S. manufacturers to supply needed commuter aircraft is reflected in advanced orders for foreign aircraft. Eight Canadian de Havilland DHC-7's (\$5.8 million each) are scheduled for importation in 1980 and 20 in 1981. One 50-passenger Fokker F-27 (\$5.3 million) on order from the Netherlands is scheduled for delivery in 1980 with three to follow in 1981. Fokker will also supply five of the larger F-28's (\$10 million each) in 1980 and six more in 1981.

Productivity in Aerospace

Transport aircraft, because of their size and high

unit values, dominate aerospace shipments. Over 1,700 Boeing 727 aircraft and 960 McDonnell Douglas DC-9 aircraft are in service, or on order. These aircraft allow for long manufacturing runs permitting productivity increases through the "learning curve" principle thereby reducing costs.

An analysis of aerospace shipments in relation to production employees finds the industry with increased efficiencies per employee during the lean years of 1976 and 1977. During 1978 and 1979, the industry gained strength and expanded its work force, but employee contribution declined due to changes in product lines and less proficient new employees (see Trends and Projections ...).

This productivity growth is measured by comparing year-to-year "real product contribution." This contribution is derived from constant dollar product shipments, less imports of aircraft parts and aircraft engine and engine parts divided by production employees' hours worked.

Aerospace Profits Disappointing

Aerospace industry profits as a percentage of sales in the first six months of 1980 sank to their lowest level since 1974. After tax profits as a percentage of sales through the first half of 1980 declined 13.7 percent, from 5.1 percent in 1979 to 4.4 percent. The comparable average rate for all manufacturing industries went from 5.7 percent to 5.1 percent, representing a 10.5 percent decline. The aerospace industry's performance in the first part of 1980 contrasts sharply with the 15.9 percent jump in profits between 1978 and 1979, exceeding the 5.6 percent average increase for all manufacturing industries (Table 4).

Aerospace profits after taxes as a percentage of stockholders' equity declined by 4.1 percent, from 17 percent for the full year of 1979 to 16.3 percent in

Table 4. Aerospace Industry Earnings Compared to All Manufacturing, 1968-80

Year	Profits after taxes as percent of sales		Profits after taxes as percent of stockholders' equity	
	Aircraft and parts industry ¹	All manufacturing	Aircraft and parts industry ¹	All manufacturing
1968	3.2	5.1	14.2	12.1
1969	3.0	4.8	11.0	11.5
1970	2.0	4.0	6.9	9.3
1971	1.8	4.1	5.8	9.7
1972	2.4	4.4	7.9	10.6
1973	2.9	4.7	10.2	13.1
1974	2.9	5.5	10.5	14.9
1975	3.0	4.6	11.0	11.6
1976	3.4	5.4	12.3	13.5
1977	4.2	5.3	13.3	13.6
1978	4.4	5.4	15.9	15.0
1979	5.1	5.7	17.0	15.8
1980 (2 quarters)	4.4	5.1	16.3	14.4

¹ Figures after 1970 include the missile industry.

Source: Data derived from "Quarterly Financial Report for Manufacturing Corporations," Federal Trade Commission.

Aerospace: Trends and Projections, 1975-81

(in millions of dollars except as noted)

	1975	1976	1977	1978	1979 ^a	1980 ^a	Percent change 1979-80 ^a	1981 ^a	Percent change 1980-81 ^a
Aerospace industry price index (Dec.) ^b	118.4	133.2	146.0	156.9	171.8	^a 193.0	—	208.0	—
Year-to-year percent change in industry price index (Dec.-Dec.)	9.1	12.5	9.6	7.5	9.5	^a 12.3	—	7.8	—
Aerospace capital expenditures	940	940	1,020	1,510	2,100	2,740	30	3,000	10
3721, Aircraft Industry									
Value of shipments ^c	12,203	13,419	14,834	17,048	22,500	28,700	28	28,200	-2
Value added	7,016	6,823	8,135	9,123	12,400	16,000	29	16,000	—
Value added per production worker- hour (\$)	28.66	29.65	34.96	34.06	37.25	45.34	22	46.76	3
Total employment (000)	220	209	223	238	277	294	6	280	-5
Production workers (000)	122	116	119	135	165	174	6	164	-6
Average hourly earnings (Dec.-\$)	6.20	6.64	7.07	7.70	8.46	^a 9.26	—	—	—
Year-to-year percent change in average hourly earnings (Dec.-Dec.)	11.3	7.1	6.5	8.9	9.9	^a 9.5	—	—	—
Product									
Value of shipments ^c	11,223	11,427	12,052	15,860	20,617	26,095	27	27,091	4
Quantity shipped units	16,825	18,017	19,853	19,987	18,824	14,760	-22	14,942	—
Trade									
Value of exports	4,472	4,168	3,927	5,859	7,015	9,773	39	10,907	12
Value of imports	192	154	308	254	509	990	95	1,060	7
SIC 3724, Aircraft Engines and Engine Parts, and									
SIC 3764, Space Propulsion Units and Parts									
Value of shipments ^c	6,248	6,497	7,159	8,615	9,602	11,700	22	13,500	15
Value added	3,570	3,709	4,186	5,199	5,570	6,670	20	7,430	11
Value added per production worker- hour (\$)	24.30	28.40	29.62	31.87	29.80	32.69	10	38.82	19
Total employment (000)	129	118	123	136	151	146	10	163	-2
Production workers (000)	70	64	68	78	88	96	9	92	-4
Average hourly earnings (Dec.-\$)	6.04	6.46	7.05	7.80	8.53	^a 9.13	—	—	—
Year-to-year percent change in average hourly earnings (Dec.-Dec.)	11.7	7.0	9.1	10.6	9.4	^a 7.0	—	—	—
Product									
Value of shipments ^c	5,376	5,789	5,925	7,131	8,069	9,915	23	11,640	17
Trade									
Value of exports	1,026	997	944	1,142	1,423	1,891	33	2,527	34
Value of imports	226	144	130	282	546	1,022	87	1,393	36
SIC 3728, Aircraft Equipment, n.e.c.									
Value of shipments ^c	4,445	4,409	4,758	5,427	7,669	8,975	17	10,296	15
Value added	2,796	2,785	3,000	3,546	4,985	5,654	13	6,589	16
Value added per production worker- hour (\$)	18.85	22.00	26.41	27.95	35.41	39.71	12	48.51	22
Total employment (000)	110	100	102	110	119	123	3	119	-3
Production workers (000)	71	64	59	64	71	72	1	69	-4
Average hourly earnings (Dec.-\$)	5.48	5.95	6.44	6.92	7.42	^a 8.05	—	—	—
Year-to-year percent change in average hourly earnings (Dec.-Dec.)	8.5	8.6	8.2	7.5	7.2	^a 8.5	—	—	—
Product									
Value of shipments ^c	4,842	5,102	5,762	6,104	8,521	10,316	21	11,835	15
Trade									
Value of exports	1,961	2,208	2,270	2,384	2,738	3,418	25	3,702	8
Value of imports	327	277	292	371	569	1,077	89	1,294	20

the first two quarters of 1980. For all manufacturing, average profits after taxes as a percentage of stockholders' equity dropped 8.9 percent—from 15.8 percent in 1979 to 14.4 percent for the first half of 1980.

Forecast to 1985

World economic and political conditions are adversely affecting the aerospace industry. Of great con-

cern is the deteriorating financial condition of the world's airlines. The slowing of passenger and freight traffic growth in 1980 pushed the 103 members of the International Air Transport Association (IATA) into "the bleakest year in international aviation history." For 1981, IATA projected scheduled passenger increases of only 3 percent to 10 percent, depending on the route, compared to an average annual increase of almost 9 percent in 1975-80.

Aerospace: Trends and Projections, 1975-81 (Continued)

(in millions of dollars except as noted)

	1975	1976	1977	1978	1979 ^a	1980 ^a	Percent change 1979-80 ^a	1981 ^a	Percent change 1980-81 ^a
SIC 3761, Guided Missiles and Space Vehicles, and									
SIC 3769, Space Vehicle Equipment									
Value of shipments ¹	6,159	6,279	5,654	6,360	6,700	7,500	12	9,800	31
Value added	4,189	4,444	3,801	4,404	4,560	5,000	10	6,500	30
Value added per production worker-hour (\$)	44.28	49.32	50.55	59.44	49.71	51.99	5	54.50	5
Total employment (000)	127	123	101	102	110	123	12	145	18
Production workers (000)	48	46	39	38	42	45	7	55	22
Average hourly earnings (Dec.—\$)									
Year-to-year percent change in average hourly earnings (Dec.—Dec.)	6.02	6.49	7.04	7.55	0.25	* 8.94	—	—	—
Product									
Value of shipments ²	9.9	7.8	8.5	7.2	9.3	* 8.4	—	—	—
Trade	5,716	5,677	5,731	5,720	6,200	7,100	15	9,000	27
Value of exports	297	479	437	608	571	679	19	870	28
Value of imports	—	—	—	—	—	—	—	—	—

^a Price deflator index from Bureau of Economic Analysis, Commerce Department.¹ Value of all products and services sold by the aerospace industry.² Estimated except for hourly earnings, price indexes, and 1979 trade data.³ As of June 1980.^a December 1979 to June 1980.¹ December 1972 is base period for industry price index.² Value of shipments produced by all industries.³ Forecast of Bureau of Industrial Economics.

Source: Bureau of the Census (industry and trade data); Bureau of Labor Statistics (hourly earnings).

The U.S. airline industry, with an operating deficit expected to exceed \$850 million in 1980, may not be able to continue all its needed modernization programs. Wheat First Securities, industry analysts, has predicted that the 1981 deficit may exceed \$400 million.

On the more optimistic side, major aircraft manufacturers generally agree that the worldwide jetliner market should be 5,000 transports valued at more than \$100 billion (1979 dollars) in the next 15 years. Other forecasts of worldwide requirements for transports in 1978-90 range from more than 6,800 units predicted in May 1980 by Merrill Lynch Pierce Fenner & Smith and 6,450 units predicted in July 1980 by Oppenheimer & Company. The steady decline in air traffic should be reversed around 1982, according to Value Line, an investment advisory service.

In constant dollars, manufacturers of aircraft can expect a 9 percent decline in the value of shipments in 1981. Engine manufacturers can expect 7 percent real growth; aircraft equipment manufacturers, 4 percent real growth, and missile and space vehicle manufacturers, a 21 percent real growth.

The compound annual real rate of growth in the value of shipments by the entire aerospace industry in 1980-85 is forecast at .4 percent. During this period, the projected rates of change by sector are: a decline of 3 percent in aircraft shipments and expansions of 2 percent and 1 percent, respectively, in the aerospace engine industry and the aircraft equipment industry.

The guided missile and the space vehicle industries, treated together, are expected to achieve an 8 per-

cent compound annual rate of growth in the 5-year period ending in 1985. Of the two, the missile industry holds the greater growth potential.

Aerospace Outlook Cloudy

World production of petroleum has risen approximately 13 percent since 1973. During the same period, proven petroleum reserves increased by only 2 percent. The free world and China have 89 percent of the proven world petroleum reserves, 31 years of product at current pumping rates. Russia and satellite countries have 11 percent of proven reserves, 16 years.

The aerospace industry's dependence on petroleum is enormous. Each day, more than 12.8 million gallons of fuel are consumed by more than 400 Boeing 747's, comprising only 7 percent of the world's airline transports. Most 747's can carry 44,000 gallons of fuel, fly an average of 10 hours a day, and consume 3,200 gallons an hour.

U.S. aviation of all types consume 10.7 percent of all transportation fuel used in the United States. U.S. airlines consume 69 percent of the aviation fuel and account for 7.3 percent of all petroleum used in the United States; the military, 23 percent; and general aviation, .8 percent.

Alternate energy for aviation, primarily synthetic fuel derived from oil shale, will not be available in sufficient quantities for 15 years.

Foreign shares of the world aerospace market will increase in the 1980's. Europe's A300 widebodied Airbus in June 1980 had an order backlog of 169 units compared to 51 units in June 1978. Boeing still

Aerospace: Trends and Projections; Values in Current and 1972 Constant Dollars
SIC Groups 3721, 3724, 3728, 3761, 3764, and 3769

4 (in millions of dollars except as noted)

		1968	1975	1976	1977	1978	1979	1980	Percent change 1979-80	1981	Percent change 1980-81
Industry shipments	Current	27,579	29,055	30,604	32,405	37,450	46,471	56,875	22	61,796	9
	Constant	32,219	24,540	22,976	22,195	23,869	27,049	29,469	9	29,710	1
Product shipments	Current	25,400	27,157	27,995	29,471	34,815	43,407	53,426	23	59,566	11
	Constant	29,673	22,937	21,017	20,186	22,189	25,266	27,682	10	28,638	3
Total employment (000)		1,016	586	550	549	586	657	706	7	707	—
Production workers (000)		550	311	290	285	315	366	387	6	380	-2
Product contribution (\$) *	Current	21.90	41.37	46.14	48.41	50.84	53.34	61.05	14	67.91	11
	Constant	25.59	34.94	34.64	33.18	32.40	31.05	31.63	2	32.65	3
Exports	Current	2,988	7,756	7,852	7,578	9,993	11,747	15,761	34	18,006	14
	Constant	3,491	6,551	5,895	5,190	6,369	6,838	8,166	19	8,657	6
Imports	Current	333	745	575	730	907	1,624	3,089	90	3,747	21
	Constant	389	629	432	500	578	945	1,600	69	1,801	13
Trade balance	Current	2,655	7,011	7,277	6,848	9,086	10,123	12,672	25	14,259	13
	Constant	3,102	5,922	5,463	4,690	5,791	5,893	6,566	11	6,856	4

Note: Extensive duplication exists in the summary industry and product values arising from shipments among establishments within the industry. Constant dollars derived using Bureau of Economic Analysis aircraft industry price deflator index, 1972 = 100.

* Peak year 1968 data included for analysis purposes (price deflator index 85.6 for 1968).

See text on Productivity for methodology of computation.

led the widebodied backlog in June 1980 with 260 units. However, the Airbus backlog of 169 exceeds the combined total of McDonnell Douglas (29 DC-10's) and Lockheed (48 L-1011's). The Airbus aircraft, with considerable European government-subsidized support, will continue to expand its market share at the expense of the U.S. industry. In addition, Japan has targeted its aerospace industry for financial assistance, as it has done in the past with electronics and autos. Competition will increase not only from Europe and Japan but also from strengthened aircraft industries in Canada, Brazil, Israel, Indonesia, the Philippines, Australia, and Poland.

Reported values of U.S. aerospace shipments and exports mask a rapidly increasing foreign content. Large transports shipped during 1980—428 units valued at \$11.1 billion—had an estimated 7.5 percent foreign content. In 1980 shipments of many smaller turboprop executive and commuter aircraft—800 units valued at \$560 million—had an estimated 25 percent foreign content. Foreign content of U.S. aerospace shipments will soon show substantial increases as military and civil shared production programs reach higher levels. U.S. commitments to foreign buyers in negotiating sales of military products involve, on occasion, high "offset" values, some,

reportedly, as high as 125 percent such as on the long range patrol aircraft sale to Canada.

In terms of both units and value, over 60 percent of the large transports manufactured in the United States during the past 7 years were for export. U.S. manufacturers have new transports in storage valued at \$350 million—with another \$150 million under construction—for which builders do not hold export licenses. When these aircraft were ordered and progress payments initiated (2 years ago) there was a reasonable assurance that export licenses would be granted. Foreign competitors, citing the uncertainties of U.S. export licensing policy in their marketing strategies, are achieving growing success in those nations where buyers of military and civil aviation producers seek to assure continuity of supply.—*Randolph Myers, Jr., Transportation and Capital Equipment Division, (202) 566-7416, Room 4845 Commerce, Washington, D.C. 20230.*

Additional References

- Aerospace Facts and Figures 1980-1981*, Aviation Week and Space Technology, August 1980, New York, N.Y.
- Aerospace Forecast and Inventory*, March 3, 1980, Aviation Week and Space Technology, New York, N.Y.
- Air Transport 1979*, Air Transport Association of America, June 1979, Washington, D.C.

Revised 1980 Aerospace Export and Import Data

Table 2 U.S. Exports 1980 Revised

	1980	
	Number	
	of Units	Value
Aerospace Vehicles and Equipment, Total [*] ...	-	15,505.8
Civilian aircraft, Total.....	4,434	8,256.4
Business, personal and utility, new.....	3,150	656.6
Rotary-wing, new.....	525	298.7
Transport, new:		
Under 33,000 lbs., empty weight.....	28	83.0
33,000 lbs. and over, empty weight.....	237	6,727.0
Other new aircraft, n.e.c.....	-	4.7
Used, rebuilt, and converted.....	494	486.4
Military aircraft, Total.....	502	949.4
Aircraft engines and parts:		
Internal combustion, Total.....	-	270.3
Military, new or used.....	110	4.4
Non-military, new.....	1,848	24.8
Non-military, used.....	1,365	17.4
Parts, n.e.c.....	-	223.7
Jet and gas turbine and parts.....	-	1,616.4
Military, new or used.....	254	58.5
Non-military, new or used.....	1,393	513.7
Parts, n.e.c.....	-	1,044.2
Missile engines and parts.....	-	28.5
Propellers and parts.....	-	56.5
Landing gear and parts.....	-	92.1
Aircraft parts and accessories, n.e.c.....	-	3,436.4
Guided missiles, components and rockets.....	-	719.6
Avionics.....	-	80.3

Table 3 U.S. Imports 1980 Revised

	1980	
Item	Number	
	of Units	Value
Aerospace vehicles and equipment, Total... ⁸	-	3,210.0
Complete aircraft, Total.....	684	973.4
Civilian aircraft, Total.....	682	970.0
Under 10,000 lbs. empty weight, new... ²	203	96.7
10,000-33,000 lbs. empty weight, new..	156	399.0
Over 33,000 lbs. empty weight, new....	16	285.5
Rotary-wing, new.....	207	54.8
Used, rebuilt, and converted.....	100	133.9
Military aircraft, Total.....	2	3.3
Aircraft engines, Total ²	2870	1,097.3
Piston-type, new.....	277	20.3
Turbo-jet and gas turbine, new.....	2593	746.4
Non-piston-type, n.e.s.....	-	330.6
Aircraft and spacecraft parts, n.e.s. ⁴	-	937.9
Spacecraft.....	-	-
Other.....	-	3.0
Flight simulators.....	-	16.3
Civil aircraft parts.....	-	182.2

⁸ Subtract \$198.5 million from this value to relate it to previous years

APPENDIX 2

RESPONSES TO QUESTIONS POSED TO MR. HARR IN THE
SUBCOMMITTEE'S LETTER OF INVITATION

1. Question: What is the current state of European and Japanese competition for present and future generations of commercial aircraft?

Response: Airbus Industrie, a European consortium funded by the treasuries of France, West Germany, Great Britain, and Spain, manufactures and markets six (6) versions of a wide-body, short to medium range, commercial jetliner - the A300 Airbus - throughout the world. Generally, the twin engine aircraft carries 250-300 passengers up to 2000 nautical miles. It is a modern technology aircraft, fuel efficient and quiet. The jetliner was first committed to production in 1971; deliveries began in 1974. The A310 derivative model deliveries are to begin in 1983.

Since 1975, the Airbus share of world aircraft commercial orders (measured in dollars) has been impressive: 14% in 1975, 5% in 1976, 9% in 1977, 12% in 1978, 30% in 1979 and 11% in 1980. Airbus has captured 25% of the world's wide body orders after 1974. Their third largest buyer of A300 and A310's is U.S.-based Eastern Airlines, which is now flying 19 A300's throughout its system. Fifteen (15) more aircraft are on order for delivery through 1988 (including 9 ordered in 1981).

As of December, 1980, firm orders for 227 A300 units have been received, 121 of which have been delivered (40 in 1980 alone) and options outstanding total 89. The A300/310 production rate is expected to reach 4 to 5 units per month by year end; the company is now planning and expanding its capability to reach 10 units per month production by 1986, including its second "family" member, the A310. The Airbus customer base totals 38 different airlines around the world.

The A310 will carry approximately 200 passengers up to 2700 nautical miles. A total of 76 A310 jetliners have been sold with options for an additional 68. Delivery of the three different versions of the A310 are expected to begin in 1983. Some A300 sales customers have the option to convert their orders to A310 aircraft, if they choose, by a designated date.

The aircraft sub-assemblies are manufactured throughout Europe; final assembly, test and delivery take place at Toulouse, France. The aircraft prices are quoted in U.S. dollars. Approximately one-third the value of the airplane is said to be manufactured in the U.S., including engines and avionics. Both the A300 and A310 have been sold with U.S.-related manufactured power plants by General Electric/SNECMA and Pratt & Whitney. These engines comprise the bulk of the U.S. content in the aircraft price. Rolls Royce engines may be used in the future.

The Airbus products compete directly with the Lockheed L1011, Douglas DC-10 and the Boeing 757, 767, and 747 aircraft, depending on the customers route system, current and future operating policy. Within the last year, several important sales campaigns have resulted in major new Airbus customers. Kuwait Airlines, Middle East Airlines, Saudi Arabia's Saudia, Singapore Airlines, Trans Australian Airlines and Canada's Wardair chose, for the first time, to purchase non-U.S. aircraft for future fleet expansion. In addition, all North American airlines have been given aggressive proposals by Airbus, eager to achieve a strong foothold in the major re-equipment cycle about to begin and continue throughout the 1980's. The Eastern sale was the first major penetration into North America, Wardair was the second. Other major successes include campaigns in Brazil and along the Silk Route (Australia to North Africa), where 102 units have been sold, 94 of them in the last four years.

The future development of the Airbus product line announced to date includes both short-range and long-range aircraft. Five additional aircraft models are currently under study, including a stretched version of the A300, the TA-9; an A300 freighter model; a long range derivative, called the TA-11, and two narrow body aircraft in the 130-160 seat range called the A-320-100 and A-320-200. Advanced technology is an integral part of these new product offerings, as they are known today. Aerodynamics, material, manufacturing, avionics and engine technological advances are under study to continue the development of a broad product line which Airbus states will find a market and utilize their expansion in facilities and customer base. The 38 customers acquired to date for the A300/310 virtually assures them a market for the new A-320 series.

In addition to Airbus, the manufacturers in Great Britain (British Aerospace), and The Netherlands (Fokker) produce the BAC- 111 and the F-28 jetliner, respectively. One hundred fifty eight (158) F-28's have been delivered since 1969. The BAC 111, now assembled in Romania under license from British Aerospace, continues to sell in Europe and Asia. Two hundred and twenty seven (227) units have been delivered since 1965. At this time, the British Aerospace capability is dedicated to the Airbus program throughout the 1980's, but Fokker is busy with its advanced design, short and medium range, 140 passenger F-29. If the Dutch government agrees to the project, including international collaboration, the \$1.2 billion development would include a Rolls Royce/Japanese engine called the RJ-500. The F-29 would compete head-to-head with the Boeing 737-300 and the Airbus A-320 series. It seems unlikely that the Dutch will undertake such a program independently. Their collaboration discussions have included Airbus Industries.

In the competitive engine arena, Rolls Royce has significantly increased its share of the wide body engine market from 8% in 1977 to 22% in 1980. Their product line has increased from a single product in the L-1011 aircraft to a "family" of engines. This "family" of engines can and are being used in the full spectrum of aircraft types.

Japan has stated its intent to promote development of its commercial aircraft industry through international collaboration, and is currently conducting discussions in this regard with Fokker, Airbus Industries and with U.S. firms.

To date, Japanese competition is in the formative stage. The Japanese industry is small; most of its recent sales have been military-related or production in support of U.S. commercial aircraft programs. Recognizing the long term benefits of having an advanced technology capability in aircraft, Japan has joined with Rolls Royce to develop and produce the RJ-500 engine. Japan and Rolls Royce are sharing equally in the \$350 million development cost of this engine. The RJ-500 is a candidate for competing with General Electric and Pratt & Whitney to be the power plants on the F-29, and the advanced Boeing 737(-300), a 138 seat derivative aircraft. Collaborative production contracts are underway by three Japanese companies with Boeing to provide parts for the new 767 jetliner. Japanese development costs will approximate \$150 million, of which the government will finance one-half.

A high technology industry, such as commercial aircraft and engines, could represent a major step for Japan toward replacing steel and ship building as its high technology industries. Their experience and capability today is limited to licensed production and collaborative arrangements. U.S. and European interest in Japan as a potential collaborative participant centers primarily around marketing and funding considerations. The Japanese are competitive in terms of price, quality and schedule reliability.

During this decade, multi-national collaboration will likely increase, along with the competition in worldwide jet transport markets.

2. What role are the European and Japanese governments playing in their respective aircraft industries and the development of commercial aircraft that do or will compete with U.S. commercial aircraft? To what extent are these government activities consistent with the Agreement on Commercial Aircraft negotiated in the Tokyo Round? What is the current status and effect of that Agreement?

The European commercial aircraft industry is essentially consolidated in Airbus Industrie, a consortium of predominantly government owned or controlled enterprises consisting of companies from France (37.9%), Germany (37.9%), the U.K. (20%), and Spain (4.1%) as full partners, with Belgium and The Netherlands as associates. Government financial support is provided to these companies through a variety of means not available to U.S. firms, including research and developmental grants, guaranteed low or no interest loans, marketing subsidies, currency exchange subsidies and the infusion of equity capital in government owned companies (the French, British and Spanish companies involved are essentially government owned, the German and Belgium companies about 50% government owned, while Fokker of

The Netherlands is a privately owned company. As a result, the prices of aircraft for Airbus Industrie programs (A300 and A310) do not necessarily reflect the full economic costs that would have to be recovered under our private enterprise system.

In addition to financial subsidies, the governments of Airbus Industrie play an active role in the marketing function. Initial sales of the Airbus A300 were extremely slow, with only 57 airplanes ordered during the first seven years it was sold, a situation which would have likely forced a U.S. firm to abandon the project. These initial sales were almost certainly directed procurements to "buy national". French Finance Minister, Jean-Pierre Fourcade put such pressure on Air France in January, 1975. Other sales resulting from government pressure included Lufthansa, Iberia, and more recently Sabena. Once established in a fleet, there is no further need for such pressure: a carrier has an economic incentive to buy additional units (and derivative models) because of the previous investment in spares, training, specialized ground support equipment, crew familiarity, etc.

"Political leverage" is another important factor in the sale of European produced aircraft. Although difficult to prove conclusively in any legal sense, events have provided evidence that there has been a continuing involvement by governments of Airbus participants to induce aircraft sales by associating sales to political agreements such as: (i) trade agreements, (ii) route awards/landing rights/-frequency rule adjustments (e.g., Korean landing rights in Paris, Iberia frequency agreement in European routes, Swissair traffic rights with France, U.K., FRG, etc. (see, for example, Interavia (Geneva) Air Letter #9574)), (iii) military weapons support (e.g., military airplanes to South Africa), and (iv) economic/regional assistance (e.g., atomic power plants to Iran, petrochemical plant and Paris real estate joint venture to Kuwait). A recent twist to the "political leverage" was Australia using Trans Australian Airlines' (TAA) purchase of A300s as leverage on the EEC to buy more Australian mutton.

Another approach used by government-backed European aircraft producers to induce sales is the provision of special terms that exceed the bounds of normal commercial practice. For example, the Airbus sale to Eastern included a "Deferred Seat Plan" in which 12 of the 23 airplanes will be paid for as if they had only 71% of the 240 seats for up to four years or until load factors exceed a certain level. (See Air Transport World, July, 1978, page 25, and Hearings Before the Subcommittee on Trade, House Ways and Means Committee, July 14, 1978 (Report 95-101).) Although seats will eventually be paid for, the deferral is interest-free. Eastern also had use of 4 A300s for a six month trial period without lease cost.

The Japanese Government, through the Ministry of International Trade and Industry (MITI), has stated its intent to promote development of its commercial aircraft industry through international cooperation. Although Japanese aircraft companies are not government owned, they receive government funding support in new aircraft development programs through government loans. This applies both to Japanese programs and to Japanese participation in international cooperative

programs. These loans are repaid with interest if and when the project turns a profit. This has not occurred in Japanese programs to date. Unlike the Europeans, the Japanese Government policy excludes funding assistance for the production and marketing functions.

The level of Japanese funding assistance typically amounts to 50% of the Japanese share of development costs for aircraft programs. In the case of the RJ500 engine, which is a joint program between Japanese companies and Rolls-Royce of the U.K., the government is expected to fund over two-thirds of the Japanese share of development costs.

The Agreement on Trade in Civil Aircraft went into effect January 1, 1980. Directed procurements by the governments of Airbus Industrie participants were practiced prior to this date, establishing the pattern for follow-on sales by the carriers involved. As indicated above, the Airbus models are sold at prices that do not reflect the full economic costs which, in our judgment, will not be recovered. This violates the spirit, if not the letter, of the Agreement on Trade in Civil Aircraft.

In furtherance of the objectives of providing a commercially competitive basis for civil aircraft marketing, governments have agreed that civil aircraft prices should be based on a reasonable expectation of recoupment of all costs. While there is no requirement that each particular aircraft program must break even, production and marketing programs should be planned so that, with a reasonable production run, the program will cover all of its nonrecurring costs (such as production, finance, and marketing costs). The total costs involved here include the "identifiable and pro-rated" costs of military-funded development of civil aircraft and of components which are subsequently incorporated in civil aircraft. Such a provision is consistent with existing U.S. Government policies on recoupment for Government-funded research to the extent it benefits a commercial enterprise.

The Agreement also states that signatories shall not require airlines, aircraft manufacturers or other entities engaged in the purchase of civil aircraft, nor exert unreasonable pressure on them, to procure civil aircraft from any particular source which would create discrimination against suppliers from any signatory. The governments of Airbus Industrie participants have continued to exert "political leverage" to market the A300/310 aircrafts.

3. What is the size and composition of the projected world market for commercial aircraft between now and the end of 1984? Between 1984 and the end of the decade? What orders have American firms obtained for each of those periods compared to European orders?

The world market for commercial jet transports for the remainder of the decade of the '80s is expected to be \$116 billion - in 1981 constant dollar aircraft prices. During this period, the European jet manufacturers' success of the 1970's should provide a basis for their continuing to gain a larger share. Table 1 contains a breakdown of a representative industry forecast (as requested). Please note that approximately 60% of the world market will be among non - U.S. airlines. It is in this portion of the market that Airbus/Fokker sales effort have been most successful. Their discussions with U.S. airlines concerning the potential for a 150 seat, twin jet model, coupled with their recent experience with Eastern Airlines, suggests their potential sales in the U.S. could reach 14% of the market by the late '80's. By the end of the decade, European jet aircraft manufacturers have the potential for having captured 20% of the world market - almost twice their share in 1980 - and 25% of the non-U.S. airline market.

Table 1
FORECAST OF THE
TOTAL WORLD MARKET FOR
COMMERCIAL JET TRANSPORTS
(1981-1989)

	<u>1981-1984</u>	<u>1985-1989</u>	<u>TOTAL</u>
<u>MARKET/SHARE</u>	<u>1981\$</u>	<u>1981\$</u>	<u>1981\$</u>
U.S. Airlines Market	11 Billion	31 Billion	\$42 Billion
European Mfr. Share (Est.)	2%	14%*	11%
Non U.S. Airlines Market	31 Billion	43 Billion	74 Billion
European Mfr. Share (Est.)	26%	24%	25%
Total World Airlines Market	42 Billion	74 Billion	116 Billion
European Mfr. Share (Est.)	20%	20%	20%

* Assumes some sales success within the U.S. market for a 150 passenger two-engine airplane.

Table 2 contains data which relates to U.S.-and European-made aircraft announced orders by model, manufacturer and delivery time frame. Based upon announced orders as of December 31, 1980, European manufacturers of commercial jet transports have 195 units on order for delivery in the 1980's. This does not include options. Airbus, alone, has 1 option aircraft for every 2 firm orders announced. Since December, 1980, Wardair of Canada has announced orders for 6 A310s and options for 6 more. U.S. manufacturers' share of announced unit orders at year end 1980 was 81% between 1981 and 1984 and 70% for the remainder of the decade.

Table 2
COMMERCIAL JET TRANSPORT
ANNOUNCED ORDERS (AS OF 12/31/80)

<u>Sold by:</u>	<u>For Delivery During:</u>		<u>TOTAL</u>
	<u>1981-84</u>	<u>1985-89</u>	
EUROPEAN MFG.	<u>UNITS</u>	<u>UNITS</u>	
<u>AIRBUS</u>			
A300	102	4	106
A310	52	24	76
<u>BRITISH AEROSPACE</u>			
BAC-111	3	-	3
BAE-146	3	-	3
<u>FOKKER</u>			
F28	<u>7</u>	<u>-</u>	<u>7</u>
TOTAL EUROPEAN MFG.	167	28	195
U.S. MFG.			
<u>BOEING</u>			
727	108	-	108
737	150	-	150
747	76	-	76
757	55	57	112
767	157	9	166
<u>DOUGLAS</u>			
DC9-30/50	23	-	23
DC9-80	84	-	84
DC10	26	-	26
<u>LOCKHEED</u>			
L1011	<u>45</u>	<u>-</u>	<u>45</u>
TOTAL U.S. MFG.	724	66	790
TOTAL UNITS	891	94	985

4. With respect particularly to the market in Middle East countries for commercial aircraft for the time periods mentioned above, what is the current and likely future competitive situation of U.S. aircraft exporters? What has been the effect of U.S. foreign policy export controls upon U.S. commercial aircraft exports to this region? How do such controls compare to other factors (such as finance terms, increased competition, etc.) in their effect on U.S. market success?

With respect to the Middle East and North African market, U.S. commercial aircraft exporters will find themselves increasingly disadvantaged in an intensifying competition with Airbus Industrie. U.S. manufacturers have not won a sales campaign in Middle East markets (excluding Israel) involving latest technology aircraft. In competitions for the wide body market, Airbus has won the sales to Egyptair, Tunis Air, Kuwait Airways, Saudia, and Middle East Airlines, even where the U.S. product was judged technically superior. If Airbus continues to win out over U.S. manufacturers, the remaining Arab carriers are unlikely to purchase U.S. aircraft since it is normal practice to pool spare parts, maintenance, and training facilities within a regional market. Initial sales are crucial as airlines tend to continue purchasing a particular airplane/manufacture type over a 15 to 20 year cycle.

The projected market in the Middle East and North Africa (with the exception of Israel) over the next decade for which Airbus could make a clean sweep with its A300 and A310 aircraft is \$5.4 billion (current dollars). The success of Airbus in this region can be largely attributed to U.S. foreign policy in general and U.S. foreign policy export controls, in particular. The Commerce Department has acknowledged that export controls are jeopardizing commercial aircraft sales throughout the Middle East and North Africa. In notifying Congress of the extension of the controls, the previous Secretary of Commerce Klutznick stated in a letter dated December 31, 1980:

"The controls on aircraft sales have in part been responsible for the downward trend of U.S. sales in an area that is the largest and fastest growing market in the world... It is noteworthy that Saudi Arabia, currently the single largest customer for U.S. aircraft in the Middle East, has recently purchased eleven planes from Airbus Industrie over U.S. suppliers... Kuwait has urged other Gulf States to seek alternative suppliers of aircraft as a direct reaction to U.S. anti-terrorism controls."

Other factors that are important are the excellent customer relations that U.S. manufacturers established with the carriers in this region over the past twenty years and our reputation for product quality and customer service. U.S. financing capability has also been a significant factor in the non-petroleum exporting countries. However, another major factor is the contrast in support given to export manufacturers by the U.S. versus European governments. Whereas Airbus benefits from the high level commercial diplomatic activities of the European governments, U.S. manufacturers are perceived to be inexplicably constrained by a government which has delayed and denied export licenses in an attempt to impose U.S. business practices in foreign markets. U.S. sales efforts are further disadvantaged by a fear on the part of customers in this region of U.S. government allegations of corruption, however false, long after a sale has been concluded. Our growing reputation as an "unreliable supplier", as a result of past difficulties in obtaining export licenses for some Arab states, is a major asset to our foreign competitor.

5. What diplomatic efforts have been made to assist U.S. commercial aircraft exporters in obtaining key sales? What diplomatic obstacles have been encountered in such efforts?

In the past, U.S. commercial jet manufacturers, competing solely against one another for an airline order, have only rarely sought or received assistance from U.S. diplomatic personnel abroad. The government's rigid adherence to a position of neutrality with U.S. competitors and the exporters' natural reluctance to disclose their game plans to anyone tended to appreciably reduce the value of any such cooperation. Now that, in many instances, it is a battle between individual U.S. manufacturers and foreign manufacturers backed and supported by their governments, such assistance and cooperation will undoubtedly be increasingly sought by the U.S. exporters. As this happens, it will be essential that the U.S. government provide such support to its aircraft exporters in the same way that the European and Japanese governments do if we are to remain the world's foremost supplier of commercial aircraft.

On the other hand, the U.S. Trade Representative has, on a number of occasions, interceded with foreign counterparts in attempts to assure compliance with the Agreement on Trade in Civil Aircraft. The results of these intercessions have been mixed.

6. What are the likely effects of a decline in U.S. aircraft sales (relative to European and Japanese competitors) upon U.S. foreign policy influence? Upon the U.S. domestic economy, particular smaller businesses and employment levels?

At this time, one of the greatest threats to continued commercial jet transport sales successes which the U.S. government can influence are export constraints which portray the U.S. industry as an unreliable supplier of competitive products. U.S. foreign policies practices which sanction selective nations for practices the U.S. may find distasteful have never proven effective. In reality, sanctions are more harmful than helpful in promoting U.S. interests overseas.

Sanctions lead to a reduction in trade, and, as such, reduce the presence of the U.S. in the world, thereby reducing the influence we might otherwise be able to exercise via trading relations. As informal and undramatic as these ties may be, their positive effect and potential for promoting U.S. policies is negated by the imposition of sanctions. Likewise, with very limited exceptions, U.S. foreign policy sanctions have been oriented toward limiting the export of U.S. goods, while continuing the practice of importing goods and natural resources from the offending nation sanctioned. This practice renders the principle related to imposing sanctions meaningless. So long as the U.S. market for imported goods from the nation remains open, the earnings from sales in the U.S. can be used to purchase goods sanctioned by the U.S. from foreign suppliers. If the U.S. enjoyed a position as a monopoly supplier, sanctions might be effective for a short time. Today, however, there are very few products for which this monopoly condition exists. The export-sanctioned country can easily purchase what U.S. firms are forbidden to export in other world markets - and with U.S. dollars earned by their exports to the U.S.

When the U.S. - or any world power for that matter - engages in sanction activity, its international prestige, credibility and influence are at risk. Based on the poor record of achievement in past experiences with U.S. sanction activity, continued involvement (and the attendant loss of credibility and prestige inherently to be expected) will reduce the U.S. foreign policy influence in all parts of the world. Unilateral U.S. export sanctions to promote foreign policy concerns are harmful to the national prestige, international influence and deny the reality of a growing interdependent, competitive world.

The impact on the domestic economy resulting from lost export sales is easily quantified. Using the U.S. Department of Commerce calculations that for every billion dollars in U.S. exports, 40,000 job opportunities are created, it follows that 40,000 employment possibilities, the skill development, the tax revenues and potential for increased productivity associated therewith are lost with each billion dollars of exports denied by foreign policy controls. The U.S. commercial jet airframe manufacturers subcontract to small, medium, large and minority manufacturers about half the final sales value of a typical jetliner. This means

that at least half the economic impact on the U.S. domestic economy from lost exports falls upon these subcontracting firms and the service, financial, trade sectors and those manufacturers which supply their requirement.

Small businesses are characteristically cash flow constrained, heavily leveraged with debt and oftentimes dependent upon one major customer for their market. When that market is lost (or reduced), the small business concern has the least flexibility to adjust its costs and product line or find alternative markets. The hurt hits small business first. Likewise, an expansion of markets for large capital goods exporters opens opportunities for small business first, since lead time for procurements from these firms are longer than for consumer or agricultural products.

The U.S. jet transport manufacturers are, in the final analysis, large export trading companies. The most effective and immediate way to boost small business activity is to allow successful, worldwide traders in capital goods, such as commercial aircraft, to expand their marketing sphere. Any government constraints, not clearly in the national interest, which cast doubt upon the reliability of a proven, highly visible industry hinders U.S. policy implementation in other areas of concern.

7. What is the U.S. Aircraft Industry doing to maintain its competitive position in commercial aircraft exports?

The commercial jet transport manufacturers are waging an exceedingly vigorous battle to maintain their competitive position in the world market. There are near-term and long-term aspects, and the two are highly related.

Within near-term perspectives, the industry has committed billions to bring out new and improved fuel efficient offerings in several market areas. The DC9-80 represents a significantly improved aircraft that had its initial airline delivery in 1980. The Lockheed L1011-500 has become the first civil program to utilize some new advances in control system efficiencies. The 757 and 767 each represent new multi-billion dollar programs with initial airline deliveries in 1982 and 1983. The Pratt & Whitney PW2037, JT9D-7R4 and the General Electric CF6-80 engines are similar commitments in the aircraft engine business.

The commercial manufacturers, in particular, represent a bright spot in terms of industrial productivity with their strenuous efforts to reduce manufacturing costs and offset the competitive advantages of foreign subsidized industries. It is significant to note that the commercial side of the U.S. industry, because of production stability afforded by its world market dominance, has been able to modernize and expand its production capabilities. By contrast, much of the industry that is dedicated to military production has lagged in modernization due to investment risks associated with military procurement uncertainties.

Strictly from a near-term technological perspective, the U.S. commercial transport aircraft is still a sound competitor in fuel efficiency and price. However, the expansion of foreign R&D capabilities (much of it funded by the government

involved) has challenged the U.S. leadership, and the U.S. industry's competitiveness has become much more sensitive to export financing and the non-technical aspects in the domain of government policy.

In the longer term, technology building blocks are under development that, when combined, can produce fuel efficiency improvements potentially capable of obsoleting all large civil transports, both U.S. and foreign. Research and development leading to application is proceeding in several world areas, and in some cases, the foreign developments are outpacing the U.S. programs. In the U.S., basic research toward these building blocks is funded by industry, NASA and DOD. However, before aircraft can incorporate such improvements, very extensive validation programs are necessary. Industry has urged an increase in NASA aeronautics programs, particularly those applicable to civil transport, however, leaving application developments to be funded entirely by industry.

Foreign near-term market successes and increasing production is combining with their building block research in a surge that seriously threatens the U.S. industry's future. The problem is not one of U.S. industry inaction, it is one of a more aggressive level of foreign action --- derived from government policies highly supportive to industrial aerospace objectives.

This answer applies to relatively large transport aircraft. The commuter transport market is one in which U.S. manufacturers have not been predominant. Most new offerings in this market are foreign built and/or foreign financed, with active foreign government involvement.

In summary, the U.S. commercial transport manufacturers are dedicated to remaining competitive in the export market. The manufacturers are well aware that near-term losses to that market will have a very significant impact on the long-term aerospace leadership of the U.S. The world environment for maintenance of U.S. leadership has grown much more difficult.

8. What proportion of European and future Japanese commercial aircraft are likely to be of American manufacture? To what extent will this offset any loss of U.S. commercial aircraft sales? To what extent are other aerospace products, such as satellites and launch vehicles, likely to replace aircraft over the next two decades as an export area in which U.S. firms have a competitive advantage? What are the implications of such a shift in the aerospace market?

It has been reported that approximately one-third of the value of the Airbus Industrie A300 comes from U.S. parts, including the engines. If it is assumed that

this relationship holds for future European programs and that such programs will displace U.S.-produced aircraft in twenty percent of the world's markets, then the net impact on U.S. sales would be a loss of about 13% of the world market. The world commercial aircraft market is estimated to be \$116 billion over the next nine years. The displacement of U.S. sales could therefore be approximately \$15 billion over this period.

If U.S. participation in European programs were entirely excluded, the sales displacement could approximate \$23 billion over this period.

Aerospace products, such as satellite and launch vehicles, are currently produced under the guidance of the European Space Agency (ESA). ESA consists of 11 member nations, plus associate and observer participation. The launch site is in French Guiana. In 1980, ESA had a budget of nearly \$850 million. Two major programs are soon to reach the operational phase -Ariane Launch Vehicle and Spacelab. Ariane's operational capabilities are marketed world wide by a group called Arianespace. Spacelab is being produced for NASA's Space Shuttle program. The first unit will be delivered in 1982. Commercial applications in satellite communications launch projects have a wide array of possibilities.

ESA is now putting together a 10-year plan for derivative and commercialized models of the Ariane. ESA's Meteorat satellite was first launched in 1977. Space transportation activity, centered around the Space lab and Ariane program, is receiving increased emphasis in ESA planning. The next Ariane launch is set for June, 1981. Program officials are eager to move from the pre-operational stage to market status in order to establish Ariane's credibility as a marketable launch system. European officials hope to enjoy several successes with the system to successfully compete with the U.S. Space Shuttle program commercial opportunities. Follow-up development is oriented toward increasing its lift capabilities to enhance competitiveness.

Although the market for commercial space launch systems is limited, efforts to capitalize on European satellite communications needs are intensive. ESA's L-SAT and the French-German TV-SAT/TDF-1 programs are two of the largest current projects. L-SAT grew out of the success of the H-SAT program; its first launch is expected in 1984. An organization called Eurosatellite GmbH has been formed to promote and market direct-television satellites on the world market. An earth observation program, called SPOT, is moving ahead with a civilian earth orbiting satellite to provide stereoscopic imagery. Marketing for SPOT data, to be handled by the French national space agency, will begin with the establishment of a U.S. branch office, according to French officials.

U.S. exports of space launch and satellite systems will meet with increased competition in a very narrow market. Much of the U.S. capability to continue active in this market depends upon the successes of the Space Shuttle and Spacelab programs. At this time, there appears to be little reason to expect U.S. space launch and satellite vehicles to supplant commercial aircraft as the chief aerospace export. However, the competitive advantage the U.S. enjoys in space today could be lost to Europe's competition in launch and associated satellite systems.

APPENDIX 3

STATEMENT OF THE BOEING COMPANY

The Boeing Company is pleased that the Subcommittee on International Economic Policy and Trade has scheduled a hearing on "U.S. International Competitiveness: The Aerospace Industry". Insofar as we presume the invited witnesses will address the broad political and economic aspects of international aircraft competition we have largely confined our written submission to the subject of foreign policy export controls. We would be pleased to comment on any additional areas that are of interest to the Subcommittee.

The Boeing Company would like to present its views on foreign policy export controls in light of their severe consequences on aircraft export sales. We do not take issue with the use of trade controls which effectively promote foreign policy objectives. However, we have deep concerns over the present export regulations (15 CFR Part 385) imposed by the Export Administration Act of 1979 which identify specific countries for foreign policy controls and single out aircraft valued at more than \$3 million for specific control.

Our basic concerns are addressed below:

(1) The unlikelihood that commercial aircraft export controls will achieve their intended foreign policy purposes.

If U.S. unilateral economic sanctions are to be effective, our market power must be nearly monopolistic. In the case of commercial aircraft, the U.S. no longer has the advantage of preeminence in aircraft technology. Today, the European Airbus Industrie can offer competitive new energy efficient wide bodied aircraft. Smaller new technology commercial aircraft are in the design phase in the Netherlands, Japan, and the Airbus consortium. New technology commuter sized aircraft available from Europe, Japan, and Canada are outselling U.S. products. Only the very long range class aircraft are an exception. However, sanctioned countries may be able to circumvent export controls.

In general, our foreign policy purpose is serving to encourage foreign manufacturers to expand production and launch new

commercial transport programs. If continued, it may also serve to open up Mideast and other Third World markets to the Soviets who have been effectively shut out of the non-Eastern Bloc civil aircraft market for two decades.

The consequences of our current aircraft export controls will be very severe. The Middle East and North African aircraft market has been actively pursued since 1955. In 1961, the first sale in this region was made by Boeing, ending nearly total British and French domination. A decade of effort followed in which the flag carriers were wrested away from their European and USSR suppliers. Total U.S. sales in the 1960s were about \$210 million. (Sales are quoted in year of delivery dollars unless otherwise noted.) The costly and persistent effort in sales and support activities paid off in the next decade as sales reached \$3.3 billion in a market dominated by the U.S.

The effects of the current controls are that sales efforts, in the four countries listed in 15 CFR Part 385 will continue to be greatly inhibited. Near term committed and anticipated sales of over \$500 million are in jeopardy. But the ramifications are much more severe. At stake in the next decade is \$3.4 billion (\$2 billion in 1980 dollars) in potential follow-on exports in aircraft and spares to just the airlines of these four countries.

The U.S. government, by virtue of its export license denials, has given U.S. manufacturers the reputation of being unreliable suppliers. Concurrently, Airbus Industrie has gained a major foothold in the Mideast and North Africa region by the sale of Airbuses to Egypt Air, Tunis Air, Kuwait Airways, Middle East Airlines, and to Saudia Airlines, the largest customer for U.S. aircraft in this region. In contrast, we have not been able to sell a single new technology airplane to an Arab country. As of the end of 1980, five of the seventeen major carriers in this region have chosen their new technology aircraft for their fleets for the next two decades. More carriers are expected to follow suit in the near future. Should the A300/A310 continue to win out over U.S. aircraft in this international competition, the remaining airlines are unlikely to purchase U.S. aircraft since it is normal practice to pool spare parts, maintenance and training facilities within a regional market. Also at stake, therefore, is an additional \$18 billion (\$10 billion in 1980 dollars) in sales in the next decade to Arab countries other than those identified for foreign policy controls.

In the international airline industry, the reputation of the United States as an unreliable supplier could be devastating in other Third World markets as well. In the aircraft industry, product delivery

uncertainty removes initial sales opportunities. Historically, the initial sale represents only one fourth to one third of the long term follow-on orders. Follow-on sales after the initial customer purchase can be as high as 10 times the original purchase. At risk, therefore, as a result of our export disincentives, is not only a potential \$21 billion market over the next decade in North Africa and the Middle East, but potential sales elsewhere in Africa, South America, and Asia in countries that perceive themselves to be in U.S. disfavor.

Boeing has invested billions of dollars in new facilities, research and development in support of the production of our 757 and 767 models to meet the need for more fuel efficient aircraft. The European Airbus provides direct competition. Unilateral export constraints mean potential Boeing sales will go to Airbus Industrie which has no export encumbrances and whose share of the world market increased from 1.5% in 1973 to 30% in 1979. The reduction in market size for U.S.-built jetliners will adversely affect the unit costs to all customers.

(2) The reaction of other countries to the imposition of export controls by the United States.

In some Arab states, U.S. export restrictions for reasons of terrorism have been perceived as an excuse to impede their economic development. Kuwait has reciprocated by emulating the U.S. in that its purchase of eleven Airbus A310s is intended to show displeasure with U.S. foreign policy in the Mideast. In notifying Congress of the extension of the controls, Secretary of Commerce Klutznick stated in a letter dated December 31, 1980: "The controls on aircraft sales have in part been responsible for the downward trend of U.S. sales in an area that is the largest and fastest growing market in the world.... Kuwait has urged other Gulf States to seek alternative suppliers of aircraft as a direct reaction to U.S. anti-terrorism controls." Aircraft export controls have also caused growing concern on the part of our foreign customers about the reliability of U.S. industry to deliver products already paid for or to service products after purchase. Some customers are asking Boeing to guarantee a valid export license; many do not understand our limitations. Some perceive the current export controls as a long term embargo on civil aircraft.

(3) The economic effects of the proposed controls on the aerospace industry and the United States.

During the last decade, 60% of Boeing sales were for export. We expect this dependence to continue through the next decade. In 1975, when the U.S. economy was in recession, 37% of total

Boeing aircraft sales were to the Middle East and North Africa. Export sales will always be necessary to support U.S. industry during downward airline business cycles.

The adverse effects of civil aircraft export controls on the U.S. and on individual companies are foreseeable. U.S. commercial aircraft contributes more net export value to the U.S. balance of trade than any other manufacturing sector of the economy. The 1980 balance of merchandise trade would have been 34% more negative without commercial aircraft exports. Each billion dollars in exports creates forty thousand jobs within our industry. These jobs are spread across the nation, in large, small and minority-owned businesses. Equally damaging, each \$1 billion in salaries lost creates a nearly equal loss to governmental bodies considering both the loss of state, local and federal taxes and the increased transfer payments to the unemployed.

The net contribution of commercial aircraft and spares exports to the U.S. balance of trade in 1980 was about \$9 billion, equivalent in value to 51 days of crude oil imports.

In summary, we share Congress' concern for preventing international terrorism and do not take issue with trade controls which effectively promote realistic and achievable foreign policy objectives. However, the consequences of the subject controls have been to label the U.S. as an unreliable supplier, to disadvantage the U.S. in its increasingly intense competition with Airbus Industrie, to encourage foreign competitors to offer comparable equipment without similar encumbrances, and to jeopardize sales throughout the Mideast and North Africa for the next two decades.

The removal of civil aircraft foreign policy export controls will serve the national interest as well as that of our industry. U.S. influence will be strengthened by greater dependence on U.S. suppliers for training, spares and planning assistance. The high visibility of aircraft serves to demonstrate American advanced technology and product quality; the rapport that is established with airline personnel creates ambassadors of goodwill for the U.S.

Respectfully yours,

A handwritten signature in dark ink, appearing to read "T. A. Wilson". The script is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

T. A. Wilson

APPENDIX 4

PREPARED STATEMENT OF THE SEMICONDUCTOR INDUSTRY ASSOCIATION

LEGISLATIVE OBJECTIVES

The Semiconductor Industry Association represents the majority of American merchant and captive producers of semiconductors in matters of trade and government policy and currently has 54 member companies.

SIA has played an active role in communicating to the government the problems facing the U.S. high technology industries, and in helping to formulate a legislative approach to solving those problems.

Two House bills H.R. 6433 and H.R. 6773 -- contain a carefully constructed package of measures concerning high technology which we believe will take us a significant step forward in dealing with problems of high technology trade and investment. These legislative objectives are critically important to the semiconductor industry, to other U.S. high technology industries, and to the economic future of the United States. Through swift passage of this legislation, you will give the executive branch the mandate and the instruments it needs to open world markets for high technology products and to effectively exploit the opportunities which hold the greatest potential for this country.

H.R. 6433, the proposed "High Technology Trade Act of 1982" provides the negotiating mandate we need. This bill has been carefully formulated to provide an effective method of dealing with foreign industrial policies which distort international high technology trade and investment and other policies and measures which distort trade or investment or deny national treatment to U.S. companies.

The purpose of the Act is to achieve maximum openness of international high technology trade and investment, through negotiated bilateral and multilateral agreements directed at eliminating such measures. The Act authorizes the President to negotiate agreements, which may include commitments to change U.S. laws or policies, and authorizes him to modify tariff treatment and use existing authority to alter U.S. laws, where necessary to carry them out. H.R. 6433 would provide for more vigorous use of the discretionary remedies under trade agreements and existing law, where negotiated solutions are not possible. Finally, it would establish an effective system to monitor the openness of foreign markets to U.S. technology products, services, and investment.

The components of this package have been incorporated in Senator Danforth's bill (2094), recently reported out of the Senate Finance Committee. H.R. 6773 is a companion bill to the

Danforth bill, and mirrors it in every respect, with the unfortunate exception of the tariff-cutting authority presently in the Senate bill.

The drafters of H.R. 6773 have recognized the elimination of existing tariffs as an important objective of the United States -- both in real terms and as a symbol of a more comprehensive commitment to liberalization on the part of our trading partners. Section 5 of the bill lists as a negotiating objective "the reduction or elimination of all tariffs on, and other barriers to, United States exports of high technology products and related services."

Tariff-cutting authority in this area would provide necessary bargaining leverage in negotiating away existing foreign tariffs and other barriers. Moreover, the tariff-cutting authority proposed in the Danforth bill is a limited one, tailored to the needs of the high technology industries. The authority is limited to seven specific products -- the duty on each of which is less than five percent -- and is for a five-year duration only.

The chief importance of the tariff-cutting authority, however, stems from its role as an integral and necessary part of a carefully constructed package of legislative measures designed to deal effectively with the whole range of problems in international high technology trade and investment. The elimination of tariffs is part of an orchestrated solution to these problems.

THE COMPETITIVENESS OF THE INDUSTRY

Through an emphasis on high technology, more than on any other industry, the United States is more likely to achieve its economic goals. High technology industries such as the semiconductor industry will fuel the electronics revolution. World markets for semiconductors and other high technology products are expanding at an extraordinary rate. It has been estimated that the world market for electronic products over the next ten years will exceed one trillion dollars.

This is an area in which the United States is strong and highly competitive. It is an area of rapidly expanding employment at a high level of skill. For every job in the high technology industries, eight jobs are created in sectors that supply it. In California, for instance, it has been estimated that 45% of the new jobs in the last five years have been created by the semiconductor and related industries.

Our industry is highly competitive. If allowed to compete on fair and equal terms with our foreign counterparts, there can be no doubt of our ability to maintain the leadership position we have occupied since our industry's inception. We are cost-competitive, and we are competitive in technological innovation.

Semiconductor prices until very recently have followed a traditional learning curve pattern, with prices declining steadily over time, as output expands and efficiency is achieved through experience.

Our productivity record, as measured by the value added per employee, is spectacular. While productivity of the U.S. economy as a whole stagnated during the late seventies, productivity in the semiconductor industry increased at an annual rate of over 22 per cent.

The technological competitiveness of our industry -- our rate of innovation -- is revealed by the rate at which we have introduced new products. Since 1971 U.S. manufacturers have produced four successive generations of computer memory devices. The U.S. industry leaders have succeeded in quadrupling memory capacity about every two or two and a half years.

Moreover, our industry has demonstrated a high degree of flexibility and vitality in adjusting and responding to the pressures of international competition we have faced since the late 70's. We have been able to expand capacity and to maintain the required level of research and development in the short-term through market restructuring, and have been willing to invest increasing amounts of money in expanding capacity and research and development -- more than matching Japanese efforts -- during the recent recession and price suppression.

Competitiveness and flexibility can only take us so far. The continued viability of the United States semiconductor industry hinges on the openness of international markets to our companies and their products. The focus of our production and marketing is of necessity on the global market, and maximum access to that market is absolutely crucial. We need open international markets because of the size and distribution of the world market, because of the nature of our production process, and most importantly, because of the available economies of scale and our need for investment capital.

Foreign markets account for half of the total value of semiconductors consumed worldwide. This fact alone underscores the importance of these markets for American firms. Of total worldwide consumption of 15 billion dollars worth of semiconductors in 1981, 9 billion dollars represents foreign markets. Of these, the fastest-growing foreign markets -- those of the EC and Japan -- are not fully open to us. We need the volume represented by these markets in order to stay on the learning curve and capture cost efficiencies. We need to be able to compete on an equal basis in those markets with domestic producers.

To remain competitive in an industry where sales are concentrated in the most advanced products means that we must invest a constant and substantial stream of capital in research and development of next generation products. If we do not, our

leadership position will be short-lived. Compared to an average investment by U.S. industry as a whole of 3 per cent of sales, U.S. semiconductor producers currently invest an average of 9 per cent of their revenues in research and development. We estimate that U.S. producers will have to invest over \$100 million per firm on research and development and production facilities to produce the 64K RAM, and \$150 and \$200 million per firm for the 265K RAM.

FOREIGN GOVERNMENT POLICIES

Other Governments have obviously understood the direct relationship between market share and research and development. It is the fundamental proposition on which they have formulated their policies of promoting and funding research and development and protecting their domestic industries. Foreign government efforts have been concentrated in memories -- the fastest growing segment of the market. This is the segment which has historically generated technology and production experience and profit which have benefited a broader range of products.

Foreign governments, including those of many of the newly industrialized countries, are unfairly protecting and promoting their industries while restricting foreign access through a range of tariff and nontariff barriers and other trade-distorting measures such as government and joint government-industry planning and establishment of objectives, toleration of anticompetitive practices, investment performance requirements, subsidization, sponsorship of limited-access joint research projects, and preferential financial and taxation measures. In contrast, the United States market is substantially free of government intervention, and is open to foreign imports and investment.

A Joint Economic Committee study published this February illustrated just how pervasive -- and successful -- such policies have been in Japan, our major competitor. Japan's policy towards its semiconductor industry echoes the theme of previous policies directed at its steel, shipbuilding and automobile industries. This policy theme has stressed the creation of comparative advantage in high value-added industries with potential economies of scale, to facilitate exporting. This is accomplished by government control over and restriction of foreign access, and by government enhancement of the export-competitiveness of key domestic industries, through support and restructuring to achieve vertical integration, rationalization and oligopolization.

During the 1960s and early 1970s, the Japanese Government restricted access to its market by rejecting all applications for wholly-owned subsidiaries and joint ventures in which foreign firms would hold majority shares, and restricted foreign purchases of equity in Japanese firms. Imports were restricted through tariffs, quotas, approval registration requirements, and discriminatory customs and procurement procedures. The Japanese government used licensing requirements to achieve diffusion of foreign advanced technology throughout its industry.

In 1976 a joint industry and government project was launched, aimed at the development of very large-scale integration technology (VLSI), and funded by public subsidies and private contributions. Approximately one-third of this funding went to purchase the most advanced manufacturing and testing equipment from U.S. manufacturers. The program was directed in major part at overcoming the U.S. lead in advanced integrated circuits.

Trade liberalization in 1976 was mitigated by increased Japanese Government support for R & D in core industries and by continued restrictions on foreign access -- principally through limiting procurement opportunities. The Japanese Government released the following statement at that time:

Because the computer industry is becoming increasingly important to the future of our economy, society, and the people's daily life, we have tried to foster and strengthen this industry. On the occasion of the import liberalization, to go into force on December 24, 1975, the Government (will continue to) cherish the independence and future growth of Japan's computer industry, and will keep an eye on movements in the computer market so that liberalization will not adversely affect domestic producers nor produce confusion.

As recently as 1978, the "Buy Japan" philosophy was further strengthened by the enactment of Public Law No. 84 -- designed to assist industry in the development of electronic devices, electronic computers, and computer software. The law provides for low-cost R&D funding, the formation of cartels exempt from anti-monopoly laws, special tax benefits, and entry restrictions directed at minimizing competition.

The most significant Japanese advantage is the stable availability of capital. Japanese firms have debt-equity ratios of 150 to 400 per cent, compared to ratios of 5 to 25 per cent for U.S. firms. This is a result of close cooperation between the government and lending banks, the industrial groupings around large banks, and the fact that market rationalization and oligopolization make Japanese firms a secure investment risk. Stable access to capital allows Japanese firms to utilize longer planning horizons, as they are not as dependent on short-term earnings.

The consequences in terms of price and market share are disastrous. When the Japanese entered the 64K RAM market in October, 1980 our price curve dropped from a 70 per cent to a 19 per cent slope. During 1981, the price of the 64K RAM fell from \$25 or \$30 per device, to about \$6. The result of this dislocation in learning curve pricing will cost the industry billions of dollars in revenue. (See Figure 1).

The U.S.-Japan trade balance for semiconductors illustrates just how successful -- and how disastrous -- these policies have

been. Imports from Japan in 1981 climbed to nearly 400 million dollars, while exports to Japan remained flat. This represents a complete reversal of our trade position with Japan.

Although Japan represents the most serious threat from targeted industrial policies, we are seeing the pattern repeat itself in other countries.

If foreign government policies and practices continue to deny U.S. access to world markets, the result will be a loss of U.S. technological superiority over a whole range of products. The Japanese market alone could amount to 35 to 40 per cent of world demand. If that market remains substantially closed, our Japanese competitors, backed by government support, will benefit through lower cost due to experience at a much faster rate than our firms, while denying us access to the market we need to match them.

The impact of such foreign industrial policies that concerns us most, however, is the resultant erosion of investor confidence in the U.S. high technology industries. Innovation-driven industries give rise to capital expenditures on research, with resultant social benefits in terms of productivity, employment and a balanced budget. Trade and investment distorting foreign government policies distort this equation, however, and the social benefits are diverted abroad.

Little incentive exists for investment in industries unfairly targeted by our major competitors.

High technology industries must be perceived as secure investment risks. Unless the government negotiates away the barriers the proposed bills address, the cost of capital bears an unacceptably high risk premium.

CONCLUSION

Our point of departure for trade policy is that there is no good substitute for complete openness across international borders to international trade, investment and knowledge.

In our highly interdependent international economic system, maximum worldwide development of high technology is undeniably in the best interests of all. To adopt shortsighted policies focused exclusively on national achievement is to divert us from the path of maximum efficiency and progress, and can only be counterproductive.

The combination of legislative measures in H.R. 6433 and H.R. 6773 contain the ingredients necessary for achieving substantial progress in dealing with the problems of high technology trade and investment, and may form the foundation for a comprehensive solution. These measures are urgently needed, and we emphasize the importance of their early enactment.

FIGURE 1

Learning Curves. Price per Bit vs. Cumulative Volume in Bits

Mos Dynamic RAMs

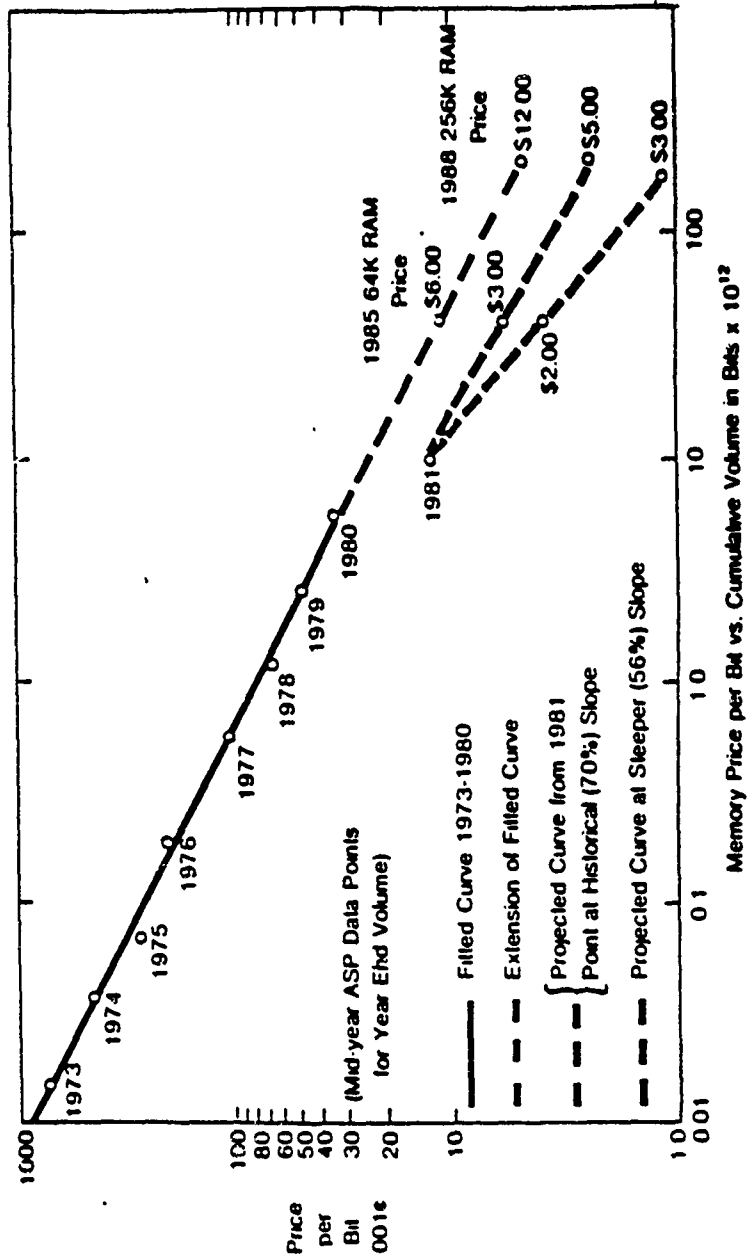
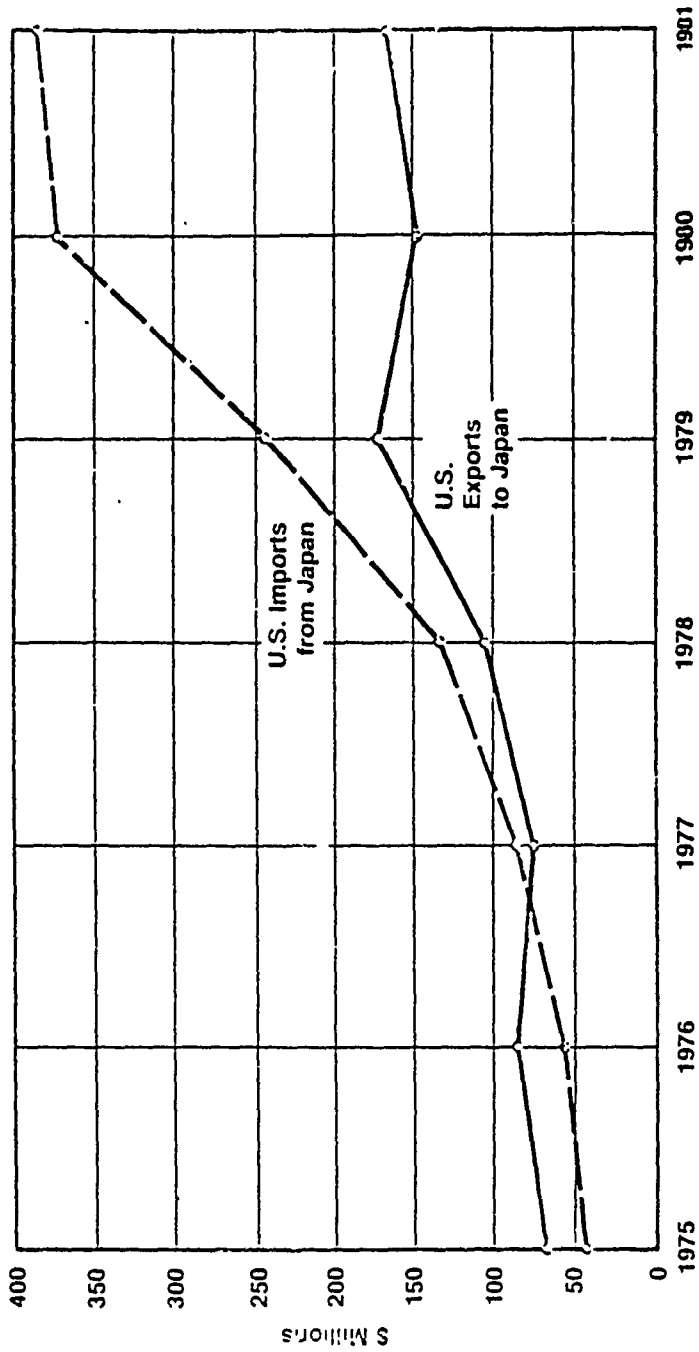


FIGURE 2

U.S./JAPAN TRADE BALANCE (Total Semiconductors)



Data: U.S. Dept. of Commerce

March 1982

APPENDIX 5

THE COMMERCIAL SECTOR OF THE U.S. HIGH TECHNOLOGY ELECTRONICS INDUSTRY—A BRIEF SURVEY

The U.S. Electronics Industry

1. Electronics is defined as the branch of science and technology that deals with the study, application, and control of the conduction of electricity in a vacuum, gas, liquid, semiconductor, conductor, or superconductor. Electronic products contain materials, parts, components, subassemblies, and equipment which employ the principles of electronics in performing their major functions. The ability to influence the flow of electricity distinguishes electronic equipment from that which is purely electrical.
2. Radio and television, computers, satellites, factory automation, space flight, and sophisticated defense systems are all made possible by electronics. With recent developments in microelectronics technology, electronics now supports the everyday functions of banks, supermarkets, kitchens, mail delivery, and offices of every kind. During the remainder of this century, electronics will have a pervasive and long-lasting influence on employment, industrial productivity, communications, international trade, entertainment, and our entire way of living.
3. The U.S. electronics industry employed some 1,606,600 people in manufacturing and related activities in 1981. Approximately 64 percent were employed in plants producing end equipment, with the remaining 36 percent in component manufacturing plants.
4. The industry can be conveniently separated into four major categories. These categories and their corresponding 1981 U.S. factory sales volumes are:
5. Industrial Electronic Equipment and Systems \$43.4 billion 38.2%
Computing and data processing equipment,
testing and measuring apparatus, nuclear
electronic devices, medical equipment,
control industrial process equipment, etc.
6. Communications Equipment and Systems \$34.6 billion 30.4%
Telephone equipment, satellites, radio and
television broadcast equipment, mobile
radio, radar, search and detection
equipment, electronic mail, etc.

7. Electronic Components \$24.4 billion 21.4%
 Active components, including electron tubes, solid state devices, etc. Passive components such as capacitors, resistors, etc. Electromechanical and electromagnetic components.

8. Consumer Electronics \$11.4 billion 10.0%
 Television and radio receivers, video tape and disc systems and software, games and personal computers, car audio, calculators, wristwatches, telephones and accessories, home security systems, environmental controls, appliances, etc.

\$113.8 billion 100.0%

9. The U.S. electronics industry is one of the strongest positive contributors to the U.S. balance of trade (see table).

IMPORTS, EXPORTS, AND BALANCE OF TRADE FOR
 ELECTRONIC PRODUCTS BY INDUSTRY (\$ MILLION); UNITED STATES, 1980 - 1981

	1980			1981		
	Imports	Exports	Balance of Trade	Imports	Exports	Balance of Trade
Consumer Electronics	\$ 4,501	\$ 814	\$(3,687)	\$ 7,162	\$ 792	\$(6,370)
Communications Products	1,036	1,872	836	1,510	2,321	811
Industrial Products	1,935	11,692	9,757	3,913	14,414	10,501
Electron Tubes	258	367	109	279	376	97
Electronic Parts	2,355	2,654	299	2,935	2,027	(908)
Solid State Products	2,971	2,748	(223)	3,579	3,528	(51)
Other	258	44	(214)	311	85	(226)
TOTAL	\$13,314	\$20,191	\$(24,245)	\$19,689	\$23,543	\$ 3,854
TOTAL U.S. BALANCE OF TRADE	\$244,871	\$220,626	\$(24,245)	\$261,008	\$23,543	\$(27,533)

The High Technology Commercial Sector

10. This survey concerns the commercial sector of the U.S. high technology electronics industry, defined as nonmilitary equipment in three major categories: Industrial Electronic Equipment and Systems, Communications Equipment and Systems, and Electronic Components. Although specific figures are not available, we estimate that in these categories, specially designed military products constituted about 90 percent of the U.S. government's

1981 purchases of \$29.4 billion. This places the 1981 U.S. factory sales volume of high technology commercial electronic products at approximately \$87 billion, and employment at some 1,230,000.

11. Many U.S. firms in the high technology electronics industry share common characteristics: rapid growth from very small beginnings, entrepreneurial ownership/management, strong emphasis on R&D, relatively little reliance on patent and copyright protection, relatively modest capital requirements, equity (often venture capital) rather than debt financing, additional financing obtained from relatively high retained earnings, etc.
12. The traditional pattern in the high technology electronics industry has been one of relatively easy entry (and exit!). Firms manufacturing equipment have required relatively modest initial capital investments, since their principal manufacturing activities consisted of assembling components and testing the end products. As these firms grew larger, they traditionally integrated vertically--backwards into various sheet metal activities, machine shop operations, plastic molding, some electronic component manufacturing etc., and forward into their own sales and service arrangements. Horizontal integration has been quite limited, with many equipment firms developing new products closely related to their original electronic specialties. A relatively recent exception to this narrow concentration has been the pervasiveness of computers; products in virtually every sector of the high technology electronics industry now utilize computational elements.
13. With the exception of electronic tube and semiconductor manufacturing, the capital investment in manufacturing equipment in most electronic material and component firms has been relatively modest. Semiconductor (particularly integrated circuit) manufacturing requires extensive and ever-growing capital investments. As a result, semiconductor firms tend to concentrate their R&D and chip manufacturing activities in a single location in the U.S. and to perform assembly and test activities in a number of low-cost labor areas abroad. It is interesting to note that a number of integrated circuit manufacturers are integrating forward and horizontally into certain equipment areas, most successfully with microcomputers and less successfully with highly competitive electronic consumer products, such as watches and low-cost calculators. Most integrated circuit firms have large R&D overheads and managements who are technically inclined. Thus, they seem to be most successful when concentrating on highly engineered products.

Research and Development

14. The industry is highly R&D intensive--products have a high rate of obsolescence and are constantly being improved or replaced with more sophisticated versions. It is not unusual for firms to make

an annual investment in R&D of 8 to 10 percent of their sales volume (up to 12 percent in many leading semiconductor companies); therefore, the industry strongly supports tax changes designed to stimulate innovation and to increase technological growth. Several beneficial changes were enacted in the Economic Recovery Tax Act of 1981: Tax credits for increased corporate R&D and increased industry/university cooperative research, liberalized stock option incentives, expensing at more nearly fair market value equipment donated for university R&D, and temporary suspension of those provisions of Section 1.861-8 of the U.S. Treasury Regulations, which allocate a portion of U.S. incurred R&D expenses to foreign source income - principally from products exported from the United States and from royalties and dividends received from abroad.

15. The R&D work force--mainly electrical and mechanical engineers, often with graduate degrees--is generally in short supply. It can, and does demand premium salaries. It also migrates to areas with cultural and recreational amenities near major technical universities. The universities, in addition to stimulating new ideas and providing refresher training, most often on the graduate level, are also a source of future R&D manpower--an essential commodity in view of the fast pace of the industry's technological growth. It is also good for the universities to have R&D intensive industry nearby to provide opportunities for industry sponsored research, and to offer employment to their graduates. This, in turn, increases both the number and quality of technical students.
16. The importance of cross-fertilization of R&D ideas through exchanges of information between firms, firms and universities, and as a result of job mobility cannot be overemphasized. Steps to curtail the free exchange of basic scientific or technical information in this country--for example, through an over-zealous imposition of national security controls designed to limit the disclosure of U.S. technology abroad--could easily sap the vitality of the U.S. high technology electronics industry and blunt its ability to compete in world markets and, ultimately, in the United States itself.

Products and Marketing

17. Many companies in the industry manufacture a wide variety of products. Some manufacture literally thousands of individually identifiable items--each with separate characteristics which differ from similar types of products supplied by other corporations. These factors, plus a relatively limited demand, result in the widespread use of batch manufacturing, rather than continuous operation of dedicated production lines.
18. Most companies in the industry with strong commercial product lines do not rely heavily on specialized military procurements--the volume is generally too small and competing in

the military market reduces their concentration on commercial business. Nevertheless, many firms sell large quantities of commercial products to the military and civil portions of the federal government, as well as to state and local governments.

19. Most of the products manufactured by equipment firms for commercial use tend to be highly technical in application, use and service. This, plus the great variety of products and the subsequent need to provide assistance before and after the sale, practically mandates a captive--wholly-owned or controlled--sales/service force. Small and medium sized companies which begin with independent representatives or distributors find them useful only to a point. As the sales volume grows, the manufacturer requires greater efforts in the sales territory--additional and more highly trained sales and service personnel, larger demonstration stocks, more extensive and sophisticated service facilities, and larger replacement parts inventories. Independent representatives and distributors are usually unwilling to agree to these demands, for they fear the loss of their independence and are reluctant to see a considerable portion of their profits tied up in additional manpower, increased equipment, etc. The manufacturing concern, however, sees such investment as essential to further market development and, having both manufacturing and sales profits at its command, is willing to make the investment in its own sales/service activities.

Exports

20. Many U.S. high technology electronics companies enjoy a large export business--25 to 30 percent of sales, or even more, is not unusual--and are strong positive contributors to the U.S. balance of trade (\$10 billion in 1981). The sophistication and relatively low cost of the industry's products have traditionally led to strong demand, principally from the more highly industrialized countries, but with increasing interest from the developing countries. This export performance is due in large part to the huge U.S. market which supports costly R&D efforts and permits the achievement of significant economies-of-scale in the manufacturing process. Strong export performance is also supported by the fact that most products manufactured for U.S. consumption do not have to be modified for use abroad or, if so, modification is relatively minor, such as ensuring operation with 220 volt, 50 cycle power. U.S. industry strongly supports international standards work and the implementation of the Standards Code to minimize creation of technical barriers to trade.
21. In addition to increased sales, many U.S. firms have found that a strong export business brings other advantages. For example, domestic and international business trends are often counter-cyclical--when one is up the other is down and vice versa. Thus, a strong export business reduces overall sales fluctuations and promotes stability in the U.S. work force by lessening swings in hiring and layoffs.

22. As might be expected, the marketing of complex high technology products abroad requires technically trained sales and service personnel to advise and assist the customer before and after the sale. Smaller U.S. firms frequently utilize the services of U.S.-based combination export managers and technically competent independent sales representatives to sell their products abroad. Smaller firms, especially those "new to export", are also more likely to use the services provided by the Commerce Department, including foreign market analyses and information on marketing abroad. Such firms are also more likely to participate in the Commerce Department's foreign marketing activities, ranging from simple, inexpensive catalog shows to full-scale international trade shows. Firms of all sizes utilize the Commerce Department's Foreign Commercial Service to obtain leads in foreign markets and on-the-spot advice.
23. On the other hand, major U.S. firms rely more upon their own resources to market abroad, and sell a great portion of their products through wholly-owned sales organizations. In view of the individual characteristics of each of these products and the constant introduction of new items, larger U.S. firms are not usually interested in sharing or diluting their international marketing efforts by extending "piggy-back" opportunities to smaller firms. For the same reason, larger firms (with the possible exception of those involved in "turnkey" projects) will probably not wish to participate in Export Trading Companies. Smaller firms are likely to find Export Trading Companies most useful--providing appropriate legislation is enacted to amend U.S. antitrust and banking laws, and that strong banking support becomes available.
24. The U.S. high technology electronics industry is, however, an extensive user of the export incentives contained in the DISC (Domestic International Sales Corporations) provisions of the U.S. tax law. It strongly favors retention of this tax incentive, or its replacement by at least an equivalent measure, which places U.S. firms on a more equal footing vis-a-vis foreign competitors whose earnings on export profits are not subject to taxation. The industry also supports the following changes in the tax law: the adoption of more reasonable safe haven rules under Section 482 which govern pricing between related entities; repeal of Section 1.861-8, on the allocation of U.S. incurred R&D expenses to foreign source income; and repeal of the Subpart F provisions of Sections 951-964 which subject certain profits earned abroad to current U.S. taxation. These measures place U.S. firms at a disadvantage compared to foreign firms whose home governments have considerably less restrictive tax practices.
- 25/ Many of the commercial products and technologies of the U.S. high technology electronics industry can be used in military, as well as civil applications, and so are subject to the National Security export and reexport controls of the United States and COCOM--the

NATO countries, less Iceland, plus Japan. Major U.S. firms employ qualified licensing specialists to enable them to operate within these involved and often confusing regulations, which apply to transactions with friendly destinations, as well as with potential adversaries. Moreover, as volume exporters, these firms are able to use various special procedures designed to ease the burden of licensing. Small and medium sized firms, without either the experts or the volume often find the complexities of the U.S. and COCOM control regulations and the time required to receive authorizations to be major export disincentives.

26. Export controls imposed to support U.S. Foreign Policy objectives are matters of concern to large and small firms alike. Many companies believe the unilateral imposition of such controls--for example, the complex and conflicting U.S. antiboycott laws and regulations and the ambiguous U.S. Foreign Corrupt Practices Act--is unwarranted and self-defeating whenever similar products are readily available from non-U.S. sources, for it merely emphasizes the unreliability of U.S. suppliers and permanently diverts business to competitors abroad. ISAC 5 believes these and similar laws and regulations should be reviewed pragmatically and amended to place U.S. firms on a more equal footing vis-a-vis their foreign competitors.
27. U.S. exports of high technology electronic products are mainly financed in the country of importation. This is because the average value of most transactions is relatively small and the purchasers, for the most part, are industrial firms, educational institutions, hospitals, etc. with well-established financial resources. Direct recourse to U.S. Export-Import Bank (Ex-Im) financing is rare since, with the possible exception of certain large communications systems and large computer installations, most transactions fall below the minimum Ex-Im "thresholds." Although direct reliance is low, indirect reliance on Ex-Im financing is important. Many firms sell their products to aircraft manufacturers and other U.S. original equipment manufacturers who incorporate them into their equipment which, in turn, frequently qualifies for Ex-Im financing.
28. Products of the high technology electronics industry are almost invariably light in weight, low in bulk, and high in dollar value. Transportation costs, thus, form a relatively small percent of the value of a shipment. This permits the extensive use of air transportation which, in turn, enormously reduces the value of inventories in the distribution pipeline, virtually eliminates shelf life problems and the resultant need for retesting before sale, and finally, greatly simplifies the problems of maintaining adequate stocks of finished goods. Manufacturers often find it possible to centralize finished goods inventories in only one or two places throughout the world. The extensive use of air transportation puts a premium on rapid clearance through customs. Obviously, there's no advantage in shipping a product overnight to an overseas port of entry and then have it spend the next couple

of weeks waiting for clearance. ISAC 5 supports strong U.S. action to implement the Customs Valuation Code and to assist U.S. exporters faced with unwarranted customs delays.

29. After-sale-support--installation and repair--is extremely important for the industry's complex products. Providing service is a U.S. speciality induced in part through a penchant for "having things work," great domestic distances which separate U.S. users from U.S. manufacturers, and the relatively high cost of U.S. labor. Most U.S. equipment manufacturers consider serviceability from the day the product begins its development. The ability of U.S. firms to provide service is a competitive advantage which should be emphasized and promoted abroad.
30. The U.S. high technology electronics industry, with its strong tradition of innovation and benefiting from economies-of-scale, basically favors free trade. It strongly supports reciprocal reduction or elimination of all tariffs and nontariff measures which inhibit two-way trade. It also favors free and unhampered investment by U.S. firms abroad and by foreign firms in this country. The existence of foreign trade barriers are seen as a major limiting factor in the industry's efforts to sell abroad. These barriers are basically nontariff in nature since, with the glaring exception of the 17 percent EC rate on semiconductors,¹ most duties have been reduced over the years (or will be by 1988) in various rounds of GATT trade negotiations to the point where they do not pose serious trade barriers.
31. The U.S. high technology electronics industry strongly supports full implementation (and careful U.S. monitoring) of the nontariff codes developed during the recently concluded Tokyo Round of trade negotiations. It also favors extensive efforts to: 1) educate U.S. exporters on the codes and their use, 2) convince more countries--developed and developing--to join the GATT and participate in the codes, 3) increase the number of signatory countries to the Code on Government Procurement, and to broaden it to include more entities such as the growing--and usually government dominated--sector of telecommunications, 4) advance Canada's acceptance of the Customs Valuation Code, now scheduled for 1985, and at the same time restrain that country from raising its tariffs as it converts to this code, and 5) develop a Safeguards Code to guide emergency actions when imports cause injury to domestic suppliers.
32. The industry also favors actions outside the GATT to: 1) permit continuation of the free flow of information across national borders, 2) see that international transactions involving services

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1. Reduction of this rate, perhaps through the use of an extended version of residual tariff cutting authority similar to that which was successfully employed in 1981 to reduce Japanese semiconductor tariffs, should be a major goal of U.S. trade negotiators.

and computer software are not subjected to the same complex customs procedures imposed on trade in goods, 3) seek adoption, after suitable evaluation and resolution of any perceived difficulties, of the Harmonized Commodity Classification System developed in the multilateral Customs Cooperation Council, and 4) improve the UNESCO-Florence Agreement under which scientific instruments imported for research and/or education and not manufactured locally are not subject to duties, by retaining present end use qualifications and insisting on more uniform equivalency tests including single country, rather than multicountry, determinations.

Manufacturing Abroad

33. Firms in the industry have manufactured in Western Europe, Japan and in other more highly developed areas abroad for many years. These activities, which have grown dramatically in the last twenty years, were usually undertaken to get under various foreign tariff barriers, to avoid nontariff barriers, or to achieve lower labor costs. Advantages of these factors plus reduced distribution costs permitted U.S. firms manufacturing abroad to compete on more equal terms with local manufacturers. Production abroad by U.S. equipment firms has been almost always undertaken to supply local consumption, rather than to export to the United States.
34. These manufacturing activities have not reduced U.S. employment. Many of these products could not have been sold abroad if the United States was the source of supply. In some areas, such as telecommunications, foreign government ownership and restrictive procurement practices made local manufacturing the only way in which U.S. firms could sell equipment. U.S. employment was also helped by the fact that many of the components used by U.S. equipment firms manufacturing abroad were (and are) provided by U.S. suppliers. In addition, the U.S. balance of payments was (and is) aided by dividend and royalty payments supplied by U.S. manufacturing activities abroad.
35. Today the situation has changed, and the traditional advantages of manufacturing abroad have largely, if not wholly, disappeared: the Dillon, Kennedy and now the Tokyo Rounds of GATT trade negotiations have drastically reduced tariff barriers, and some progress has been made in lowering nontariff barriers; labor costs abroad have risen remarkably; and in-transit inventory requirements have come way down--with air shipments widely spread, supply lines have shortened almost to the vanishing point.
36. Today, equipment firms find that other reasons for manufacturing abroad have grown in importance. For example, the factory level support provided by manufacturing a select number of products abroad--principally those which face stiff local competition---provides a powerful stimulus to the local sales force. It also gives the U.S. firms the competitive advantage of a "local presence" which "rubs off" on its products imported from

the United States. Manufacturing abroad also facilitates the production of special or modified versions to meet local preferences.

37. Recently, some U.S. equipment firms have begun to import into the United States certain unique products designed, manufactured and marketed in major developed countries abroad such as West Germany, the United Kingdom, France, Japan, etc. Many of these products contain U.S.-origin components so they can be imported into the United States under the beneficial provisions of tariff item 807.00, by means of which U.S. duties are assessed only on the value added abroad, and not on U.S. origin material returned to the United States. A few equipment firms have also begun to manufacture in low-cost labor areas abroad: Singapore, Hong Kong, Malaysia, Mexico, Taiwan, etc. These countries often offer substantial incentives. Moreover, many products manufactured in developing countries can be imported duty-free into a number of highly developed countries, including the United States, under a generalized system of preferences. In the case of the U.S., the provisions of tariff item 807.00 could also apply if GSP treatment is not available.
38. The manufacturing activities of U.S. semiconductor firms offer an interesting and important variation on the theme of manufacturing abroad. The design and manufacture of the tiny chips containing literally thousands of components requires immense and evergrowing investments in highly skilled R&D manpower and in capital equipment. Moreover, these investments have an exceptionally high obsolescence rate. The "state of the art" changes so rapidly that very few technical people can remain at the top of the field for more than a few years, so a constant infusion of new scientists and engineers is essential. Similarly, manufacturing equipment becomes rapidly obsolete as new techniques are developed. The end result is that most U.S. semiconductor firms conduct their R&D and wafer fabrication activities in the United States and send acceptable chips abroad for assembly (wiring) in low-cost labor areas. In this way, faced with ever increasing demands for investment in R&D and wafer fabrication equipment, they avoid having to invest still more funds in highly automated assembly equipment which would also be subject to rapid obsolescence. As relative labor costs change; however, these companies will be faced with the need to invest in automated assembly and test equipment, resulting in a movement of assembly operations to more developed country locations.
39. The chips are assembled into packages, and the resultant semiconductor devices are imported into the United States under favorable duty rates afforded by use of U.S. tariff items 306.30 or 807.00 or, more recently, duty-free under the U.S. Generalized System of Preferences. Although most U.S. semiconductor manufacturers now perform final testing at the assembly site, since this permits early detection and rectification of errors, some prefer to perform final testing in this country either in a

duty-free zone where duties will not be assessed on defective products or under duty drawback arrangements which permit return of duty paid on defective products. In any event, the duty savings and the labor savings occasioned by assembly abroad are reflected in lower U.S. prices for semiconductor devices which, when passed on to the ultimate consumer, increase the attractiveness and subsequent sale of the end products both in this country and abroad.

Future Trends

40. Competition from abroad, growing stronger daily, will increase dramatically as more countries realize the importance of having a domestic high technology electronics industry. The case of Japan may be too well known to bear repeating. However, it's no secret that Japan has targeted the computer and photocopying industries for the 1980's, and as in the past, these efforts will be strongly supported by the Japanese government. The European Community is developing plans to capture one-third of the world's computer, telecommunications and micro-electronics markets by 1990. Other governments--for example, Mexico and Brazil--are in the process of promoting their own data processing industries through outright protection against imports, equity participation requirements, subsidies, preferential procurements, and a variety of other means.
41. Greater attention will be paid to innovation and productivity. As a result the need for highly skilled R&D personnel will continue to increase, placing additional strains on U.S. engineering schools. Personnel shortages have induced firms to press for restoration of nonrestrictive stock options to attract and retain skilled people, and for tax incentives to stimulate R&D. The R&D incentives in the Economic Recovery Tax act of 1981 are generally considered to be more important than the new accelerated depreciation rates which, for the high technology electronics industry, are not significantly improved.
42. Capital equipment needs will continue to grow, particularly in the semiconductor areas as techniques become more sophisticated and as the obsolescence rate of current equipment increases. Nations where capital is available at reasonable cost will reap a greater advantage in leading edge, high technology products. As a result, the industry will continue to press for measures which increase the availability of equity capital in the United States, including further reductions in the taxation of capital gains.
43. Wage rates in low-cost labor areas abroad, although still low in relation to the United States, are constantly increasing, as are demands of local governments for additional and wider varieties of manufacturing and R&D activities. Despite this, most U.S. semiconductor manufacturers will continue their assembly and testing operations abroad, seeking to increase reliability and yields of acceptable devices through a better use of their people

and their facilities, and through a greater use of automated equipment--an approach used by Japanese semiconductor manufacturers with excellent results.

44. Semiconductor devices will become less costly per function as more and more functions are built in. Equipment manufacturers using these more complex devices will see their direct labor costs reduced and the reliability of their products improved.
45. Greater attention will be given to developing products which other industries can use to increase their productivity. For example, mechanical control devices in manufacturing operations, consumer products, etc. will be rapidly replaced by electronic products capable of controlling many more operations with greater precision. As a result, R&D and engineering personnel of many high technology firms will have to work much more closely with other manufacturers and the end users than has been the case in the past.
46. The complexity of products will increase dramatically as increased use is made of sophisticated semiconductor devices and computer technology. At the same time, the demand for reliability will continue to increase and the pressure to develop software will mount. For example, industry sources estimate in the next three to five years software will represent half or more of computer sales. Automated testing will also be used more extensively in production, and complex products will be equipped to perform self-contained diagnostics in the field.
47. Telecommunications systems, equipment and services are rapidly evolving from their specialized niche in each nation's economy. Due to the application of sophisticated electronics, marriage with computers and availability of microwave, satellites, and fiber optics, telecommunications markets have high potential for competitive vendors. However, in many countries telecommunications networks are primarily influenced by government policy, control or ownership. The U.S. is moving rapidly towards deregulated, market dominated telecommunications systems. The U.S. must press for: 1) fair rules for procurement of major telecommunications systems by developing countries, 2) open competition for telecommunications customer premises equipment in all countries, and 3) competitive value added telecommunications services availability without undue restrictions on international data flows. In recent years, telecommunications equipment has become more complex and sophisticated; computers, microwave equipment, satellites, and fiber optics, for example, are all of increasing importance. Now that deregulation of the U.S. telecommunications network is almost a fact, U.S. equipment suppliers see a rapidly increasing market for their products in this country. In contrast, telecommunications markets outside the U.S. remain largely under government control, and in most cases, outright government ownership. Moreover, with the exception of the Nippon Telephone and Telegraph Company in Japan, the Government Procurement Code, so laboriously

negotiated during the Tokyo Round of multilateral trade negotiations, does not apply to this important market, which remains virtually closed to U.S. exporters. If U.S. suppliers are to obtain access to important and growing telecommunications markets abroad, the U.S. government will have to: 1) press all countries, developed and developing, for fairer rules of procurement, presumably through broadening provisions of the Government Procurement Code and obtaining more signatories; 2) closely monitor implementation of the Government Procurement Code and take prompt and effective action whenever its terms are violated; and 3) guard against undue restrictions on international data flows.

48. In summary, ours will continue to be one of the most dynamic sectors of the U.S. economy for the rest of the century. Our prospects are bright, given sound domestic economic policy and support for the trade policies covered above. The most important challenge to the U.S. trade policy officials will be to forge a dynamic trade policy, based on an understanding of the sector, a willingness to abandon obsolete goals and eagerness to address new objectives more politically, economically and socially complex than those being displaced.

